```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Run on:
                                                                                                                                                                                                                                                                                                           GenEmbl:*
1: gb_ba:*
2: gb_htg
3: gb_in:
4: gb_ov
6: gb_ov
6: gb_pa
7: gb_p)
8: gb_p)
9: gb_p
10: gb
11: gb
11: gt
13: g
14: c
16: 7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-081-408-1
4040
1 gtccttcccaccct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     May 20, 2003, 03:18:03; Search time 10034 Seconds (without alignments)
11717.693 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2054640 seqs, 14551402878 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                     gb_pr:*
gb_sts:*
em_htgo_hum:*
em_htgo_mus:*
em_htgo_other:*
                                                  em_htg_mus:*
em_htg_pln:*
em_htg_rod:*
em_htg_mam:*
em_htg_vrt:*
                                                                                                                  em_htg_hum:*
em_htg_inv:*
em_htg_other:*
                                                                                                                                                                                em_ro:*
em_sts:*
                                                                                                                                                                                                                    em_ov: *
em_ov: *
em_pat: *
em_ph: *
                                                                                                                                                                                                                                                                       em_mu:*
em_om:*
                                                                                                                                                                                                                                                                                                           em_fun:*
em_hum:*
                                                                                                                                                                                                                                                                                                 em_in:*
                                                                                                                                                                                                                                                                                                                                    em_ba:*
                                                                                                                                                                                                                                                                                                                                                                         gb_sy:*
                                                                                                                                                       em_vi:*
                                                                                                                                                                    em_un:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4109280
```

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	33333333333333333333333333333333333333	C C C C C C C C C C C C C C C C C C C	C C 1145 C 1188 C 220		Result
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1146 1017 773 714 714 701 422 422	175 1705 1702 1702 1432 1359 1198 1198 1198	4039. 4039. 250 250 227 1933. 1853. 1853. 1853. 1873. 1787. 1779.	Score
	66677889999999	00777958	99999555	000 000 000 000 000 000 000 000 000 00	Query Match
	2454 2452 2668 2375 2375 2249 2662 2729 27473 17001 1001 1001 1721	265 265 274 274 274 274 274 274 274 274 274 274	0 0 1 4 0 0 4 2 6 6 5 5 6 4 7 1 5 1 6 6	404 404 404 253 253 260 260 260	Length
,	9 9 6 6 6 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1	, a a a a a a a a a a a a a a a a a a a	112294114	<i>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</i>	Bd
ALIGNMENTS	BC014093 RMABPL HUMABPA G18279 AK092514 BC034215 BC021880 HSU111863 BC022627 AX017501 AB0500052 HUM170YACX AF047486 AF218035	AF081363 D88213 AB012942S1 AX401797 RNU72632 AC067811 AX330273 AX335503	S69583 AF115411 AF054831 AB02282 AF047485 AC025424 AL732315 AL732315 AL79099 AF079705	AX329732 AX333039 HSU39447 AF067406 AK025727 AB019242 AC046171 AC055866 AB05050083 BTY15774 AF054985 AB05050081 BOVERA	ID
				•	1
	AF218035 Homo sapi ART918 R. norvegicu M73911 R. norvegicu M75602 Human amilo G18279 swSS1267 Er AK092514 Homo sapi BC034215 Mus muscu BC034215 Mus muscu U11863 Human clone BC022627 Mus muscu AX017501 Sequence AX017501 Homo sapien AF218035 Homo sapien	1363 Homo sa 13 Homo sa 13 Homo sa 1942 Homo 1797 Seque 132 Rattus 1811 Homo 1827 Seque	3 copper 5411 Mus 4831 Mus 282 Bos 485 Homo 485 Homo 424 Mus 315 Mus 315 Mus 78705 Mus	732 Sequenc 039 Sequenc 7 Human pla 406 Homo sa 727 Homo sa 1727 Homo sa 1727 Homo sa 1728 Homo sa 1866 Homo sa 1805 Homo sa 1805 Homo sa 1808 Homo sa	Description

TITLE	AUTHORS	REFERENCE			ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION	DEFINITION	LOCUS	RESULT 1 AX329732
Horrigan, S., Soppet, D.R. and Weaver, Z. Cancer gene determination and therapeutic screening using signature	Young, P.E., Augustus, M., Carter, K.C., Ebner, R., Endress, G.,	4	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;	Homo sapiens	human.	•	AX329732.1 GI:18102710	AX329732	Sequence 241 from Patent WO0194629.	AX329732 4040 bp DNA linear PAT 09-JAN-2002	

Pred. No. is the number of results predicted by chance to have a

	GGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAG	GGCCTCTACTACAACATC	Db 841	
	CGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCT 900	TGGCCTCTACTACAACATCT		
	SCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTT 840	CCTGGTGACAATGACCACGG	Db 781	
	CCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGT	CTGGTGACAATGACCACGG	Оу 781	
	80 0	GCTGCCCCAGGCTTCTGGGC	72	
	ОСАССАСТСТТСТТСТАСААССАСССССССССССССССС	СТӨССССАББСТТСТББС	Qy 721	
		CCGACGCCCCGTGCTGTTCC	Db 661	
	GTACCTGGACATAGACCAGATGATCTTCAACAGAG	ceacececerecrery	Qy 661	
	TGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCA 660	TCACCCCTCCTACATGCGGG	Db 601	
	GAGCGTCATGGAGGCCCCCTGCCCTATC	CACCCCTCCTACA	Оу 601	
	CCCAGCCCAACGTGAGTGAGCTGGTGGGGGCCACTGCC 600	CGTCTTCTTTGGCAGGCAAC	Db 541	
	CCAACGTGAGTGAGCTGGTGGTGGGGCCACTGC	GTCTTCTTTGGCAGGCAAC	Qy 541	
	GACAGGGGAGCCCCCCACCTGCCCGGGAGGCACTGGCCAT 540	TGCAGCCCTGGCTCACTTGG	Db 481	
	GAGCCCCCACCTGCCCGGGAGGCACTGGC	GCAGCCCTGGCTCACTTGC	Qy 481	
		CCAGGCCCGGCCCTCGGACA	b 42	
	2 と こうじょくさつしゅうじゅうじゅうじゅうじゅうじゅうせんしゅうしゅうしゅうしゅう	ASSOCIATION OF THE PARTY OF THE	42	
	N i		36	
	ACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGC 42	CTGACGGCTGTGATGCGCT	Qy 361	
	5	TGCCCAGCCTTGGACACACC	Db 301	
	CAGAGCCAGCTGTTTGCAGACCTGAGCCGAGA	GCCCAGCCTTGGACACAC	Qy 301	
	AACCCAGCCAGCTTCCCCATTGCCCCTCTGTATCTCCCAG 300	CAGGGGTGGAGATGGGGGTG	Db 241	
	CCCAGCCAGCTTCCCCATTGCCCCTCTGTATCTCC	AGGGGTGGAGATGGGGGTG	Qy 241	
	TCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGG 240	CGTGCTCCTCATTCTGGCCG	Db 181	
	reaccarerracerracraraceracracer	GTGCTCCTCATTCTGGCCG	Qy 181	
		CTCTCCTTTGGTTGAATCAG	Db 121	
	TCCCTCTTCGTGGGAAAATGAACCAGAAGACAATC	TCTCCTTTGGTTGAATCAC	Qy 121	
	SCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG 120	GCCCCCACCCCGTCCAGGAG	Db 61	
	CCAACAGAGCCCCCCTCTTGCTGGCGTGAGAATACAT	CCCCCACCCCGTCCAG	Qу 61	
	CAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA 60	GTCCTTCCCACCCTTAGTCC	Qy 1 Db 1	
0;	0%; Score 4039.6; DB 6; Length 4040; 0%; Pred. No. 0; 1; Mismatches 0; Indels 0; Gaps	atch 100. cal Similarity 100. 4039; Conservative	Query M Best Lo Matches	
	taxon:9606" 1097 g 9	/db_xref= 825 a 1183 c	BASE COUNT ORIGIN	
	alifie Homo s	Location/ ce 14040 /organism	FEATURES Sour	
)-A 241 13-DEC-2001; .cals (US)	194629 laceuti	JOURN	

1921 GTACCTGGCCAGCAACCACAGCAACAAGTGGGGTCACCCCGGGGGCTACCGCATCCAGAT 1980 	Qy Db
1861 GCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCT 1920	Qу
1801 CCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAA 1860 	Qy Db
1741 GGTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGT 1800 	. Oy
1681 CGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTCAA 1740 	ру
1621 ACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTA 1680 	Оу
1561 CTTGCTCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAAT 1620 	Qy Db
1501 CTACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCAC 1560 	Db Qy
	Qy Db
1381 GGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCAAGACAATACGTGA 1440 	Qy Db
1321 AGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACTT 1380 	Qу
	d dy
io io	do Qy
1141 AAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCC 1200 	Db Qy
1081 CCCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGGCCCCGCTTCAGTGTCCAGGG 1140	Db
1021 TGTGGTGCTGATCCCAGACAATGGCACAAGGTGGGTCCTGGTCCCTGAAGTCCCCTGTGCC 1080	Оу
961 AGGCCGCTACTACGACACCCTGGCCCAGCTGGAGGCCCAGTTTGAGGCCGGCC	ρb
01 GCTAGTGAACCACAAGGCCCTTGACCCTGCCGGCTG 	D Qy

CCTAT
CCAGCCCCTG
TGTTCCTGCCTTCT
TCTCATCCAGGTCCTTT
GGTTGCCAGTCCTGCAA
CTTTTAGGCCACCTC
GAGCCGTGGCCGAGGG GAGCCGTGGCCGAGGG
CCTTGTTGATGCCAGCT
CATCCGCCTCTGAGCCA
CGGCAGCCTGGTTCCCTC
CATGTGGCCAAGGGCTC CATGTGGCCAAGGGCTC
CGACCTCCCTGCCTTCT
TGCTGGGGCCTGCGAGG
CTTTGACGAAGACCCCT CTTTGACGAAGACCCCT
CATTCCTAACACAGTGA
TGGAAAGGATTTGGTGG
AATGACCCTTGGGCCC
CAGCTGGCTGTGACCC
GCTGGAGAGCCGCTGC GCTGGAGAGCCGCTGC

RESU AX33 LOCU DEF1 ACCE	DЬ	Qy	B	Qγ	₽	Qy	В	Ωу .	Дb	Qy	Дb	Qy	DЬ	Qy	В	Qy	В	Qy	В	Qy	Db	ρy	Фb	γo	B	Qy	В	Qγ	용	Qy	₽	Qy	뮻
ULT 2 33039 US INITION	4021	4021	3961	3961	3901	3901	3841	3841	3781	3781	3721	3721	3661	3661	3601	3601	3541	3541	3481	3481	3421	3421	3361	3361	3301	3301	3241	3241	3181	3181	3121	3121	3061
AX333039 4040 bp DNA linear PAT 09-JA Sequence 3548 from Patent WO0194629. AX333039	CCCAAAAAAAAAAAAAAAA 4040	CCAAAAAAAAAAAAAAA	TTGAATTTTGAACCATGTGACTGTATTACCTATTCAAAATAAACAATAAATGG	ACATTTTGAATTTTGAACCATGTGACTGTATTACCTATTCAAAATAAACAATAAATG	GAACCAGTAGGTTGAGGACAGGAGAGGGGAAGGGTCTTAACACTTACACCCTTTT	AGGGGAACCAGTAGGTTGAGGACAGGAGAGGGAAGGGTCTTAACACTTACAC	CATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTG	CACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATT	AGCCACAGAAATGTGTWTAGCGCACTTCCCATTTGTGTTTCAGAAAGGAGTAGAATAT	CCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTCAGAAAGGAGTAG	GTATGTCTTTATATACTAATATGTAATAATCTTCAGGTGAAAAAAGG	TAAAAAATAATTGTATGTCTTTATATACTAATATGTAATAATCTTCAGGTGAAAA	TTCTCTAAAGGACTGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCA	GACTGGTTAAATCAATTCTGATACAGCCTTACAATACAA	CTGGATTGGGGATGGGGACAAAAAAATAGCAAGAGATGAGAAACAACAACAGAAACTT	GTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAATGAGATGAGAAACAACAGAAA	GCCTGGTCCAGCTTGGGCTCCATTCCCATCACTGCTGTCCC	GGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTCCT	GTGGGGAGGGCCTGGCCTGGG	GAGCTGGGCCCTGGGTGAGGTGGGGGTTGGCCTAGTGGGGAGGGGCCTGGCCTGG	ACAACTCCAGCCAGCCAGGAGGGGGCTGTCCAATCACATTCAGGCATGCG	CCCTACAACTCCAGCCACCCAGCCAGGAGGGGCTGTCCAATCACATTCAGGCATGC	CAAAGATGAGAAGCCA	AGCCTGTTTGGGAGGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCC	GATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGC	TIGGGGGTGCAATGATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTG	TCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAG	CTCTATAGAGGAGGATGGTCATCGTGACAGCAGCAGCAGCTCAAGTTAGCATTTCAAGT	GTTTCAGGACAGCTGCTTCTGTGCATTTGTGTCTGCCTGC	TGGGGCTGGGTGTTTCAGGACAGCTGCTTCTGTGCATTTGTGTCTGCCTGC	GTGTGTCGTTCCCTTGTGTCTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGT	TGTCGTTCCCTTGTGTGTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACC	
N-2002			20	20	60	60	00	00	40	40	80	80	20	20	60	60	00	00	40	40	80	80	20	20	60	60	00	00	40	40	80	80	20

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                         QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                     B
                     밁
                                   γQ
                                                             밁
                                                                             γ
                                                                                                  В
                                                                                                                       γQ
                                                                                                                                                В
                                                                                                                                                                  δ
                                                                                                                                                                                           В
                                                                                                                                                                                                          QΥ
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Sin
Matches 4039;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                          241
                                                                                                        541
                                                                                                                             541
                                                                                                                                                   481
                                                                                                                                                                       481
                                                                                                                                                                                            421
                                                                                                                                                                                                                421
                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                 109
                                                                                    109
                                                                                                                                                                                                                                                                                                                                                                                   181
                                          661
 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -
                                                                                                                                                                                                                                                                           CGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                   CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCCCCACCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCCTTCCCACCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCCTTCCCACCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA
                  TCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCA
                                                                                                                   CCAGGCCCGGCCCTCGGACAACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGC
                                                                                                                                                                                                                                 CAGGGGTGGAGATGGGGGTGAACCCAGCCAGCCTCCCCATTGCCCCTCTGTATCTCCCAG
                                                                                                                                                                                                                                                                                                                                          CAGGGGTGGAGATGGGGGTGAACCCAGCCAGCTTCCCCATTGCCCCTCTGTATCTCCCAG
                                                                                                                                                             CGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTTGTGTCCTGCTGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                        CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCCCCACCCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG
                                                                                                                                                                                            CCAGGCCCGGCCCTCGGACAACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGC
GCTGCCCCAGGCTTCTGGGCCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAA
                                                                                                        TGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCCACCTGCCCGGGAGGCACTGGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene sets
Patent: W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Young, P.E., Augustus, M., Carter, K.C., Horrigan, S., Soppet, D.R. and Weaver, Z. Cancer gene determination and therapeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent: WO 0194629-A 3548 13-DEC-2001; Avalon Pharmaceuticals (US)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AX333039.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
llarity 100.0%;
Conservative 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
1183 c 1097 g 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
1. .4040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GI:18123673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chordata; Craniata; Vertebrata; Euteleostomi; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 4039.6;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          therapeutic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ebner, R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ᆫ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          screening
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          signature
                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                           600
                                                                                                                                                                                           480
                                                                                                                                                                                                                480
                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                      600
                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
        Ş
                              밁
                                                δÃ
                                                                       밁
                                                                                          δÃ
                                                                                                                 밁
                                                                                                                                     δõ
                                                                                                                                                            밁
                                                                                                                                                                              δÃ
                                                                                                                                                                                                    Вþ
                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                               γQ
                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                     1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1021
                                                                                                                                                                                                    1501
                                                                                                                                                                                                                                               1441
                                                                                                                                                                                                                                                                  1441
                                                                                                                                                                                                                                                                                         1381
                                                                                                                                                                                                                                                                                                             1381
                                                                                                                                                                                                                                                                                                                                                                          1261
                                                                                                                                                                                                                                                                                                                                                                                                                   1201
                                                                                                                                                                                                                                                                                                                                                                                                                                        1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1141
           1801
                                                                          1681
                                                                                              1681
                                                                                                                   1621
                                                                                                                                                             1561
                                                                                                                                                                                 1561
                                                                                                                                                                                                                          1501
                                                                                                                                                                                                                                                                                                                                  1321
                                                                                                                                                                                                                                                                                                                                                                                              1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                          CCCGGGTCCAGCTCCCCCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGGTCCCTGAAGTCCCCTGTGCC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTAGTGAACCACAAGGCCCTTGACCCTGCCCGGCTGGACTATCCAGAAGGTGTTCTATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGACGGAA
CCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAA
                                           GGTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCCGAGGATATGGTCTTTGT
                                                                                    CGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTCAA
                                                                                                                                                                                                                                               TGCCTTTTGTGTGTTTGAACAGAACCAGGGCCTCCCCCTGCGGCGACACCACTCAGATCT
                                                                                                                                                                                                                                                                                       GGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGA 1440
                                                                                                                                                                                                                                                                                                                                          AGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACTT
                                                                                                                                                                                                                                                                                                                                                                          GGCCTTGGCCATCTATGGTGGAAATTCCCCAGCAGCAATGACGACCCGCTATGTGGATGG
                                                                                                                                                                                                                                                                                                                                                                                    GGCCTTGGCCATCTATGGTGGAAATTCCCCCAGCAGCAATGACGACCCGCTATGTGGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTT
                                                                                                                              ACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTA
                              GGTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGT
                                                                         CGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTCAA
                                                                                                                   ACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTA
                                                                                                                                                                                                                                                                                                                                  AGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACTT
```

1380 1320 1260 1260 1200 1200 1140 1140

	### ##################################	용 .
	attccctctcatccaggtcctttccttctcgtcttctctctc	Qy
	2821 CCAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCTGACAGCTGGAAAGGATGCTTCTGCTC 2880 2821 CCAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCTGACGTGGAAAGGATGCTTCTGCTC 2880	Db QY
	/61 TECCUGARICTETTERGUCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACC 282	} &
	61 TTCCCGAATCTTTTTAGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACC 282	y Qy
		융
	2701 CCCAGCCTGGAGCCGTGGCCGAGGGCTTCCCTAGATGGTTCCCTTTGTTGCTGTCTGGCT 2760	Qγ
	2641 GACACTGAACCTTGTTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCATGG 2700	Qy Db
	81 CTTOTOTOTOTOTOTOTOTOTOTOTOTOTOTOTOTOTOT	Ş 5
	521 GCACTGGGCCGGCAGCCTGGTTCCCTCTTTCCTGCCAGGACTCTCTTTTCTTCCACTAC	
 	2461 GGGATGGGCCATGTGGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGG 2520	Db Qy
	2401 CTGTGCCCCGACCTCCCTGCCTTCTCCCACGGGGCCTTCTCTCACAACTAGGCGGTCCT 2460	O _V
-	2341 GGACCAGGATGCTGGGGCCTGCGAGGTCAACCCCCTAGCTTGCCTGCC	Db Qy
	2281 CTATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACCTTCCGAGG 2340	gb Qy
· · · · · · · · · · · · · · · · · · ·	2221 TGCAGAGGACATTCCTAACACAGTGACTGTGGGGAAGGGCGTGGGCTCTTCCTCCGACC 2280	Db Qy
	2161 GACCATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACA 2220	Qy .:
· · · · ·	2101 TITCAATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGA 2160	р <i>9</i>
		•
	GAGAGGTACCAGCTGGCTGTGACCCAGCGGAAGGAGGAGGAGGAGC	ογ
	1981 GCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTG 2040	рь 04
	1921 GTACCTGGCCACCACCACCACAGTGGGGTCACCCCCGGGGCTACCGCATCCAGAT 1980	рь
***	861 GCTGCTGGAGATGGAGGAGCAĞGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCT 192	
	1861 GCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCCTCGTGGGAAGCGCCACCCCTCGCTACCT 1920	Qy :
	1801 CCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAA 1860	В

10111111111111111111111111111111111111	4020	TACATTTTGAATTTTGAACCATGTGACTGTATTACCTATTCAAAATAAACAATAAATGGG	,	
	96	GAGGGGAACCAGTAGGTTGAGGACAGGAGAGAGAGAGGGTCTTAACACTTACACCCCTTTT		Qy Db
	90	AACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTG		Qy Db
	84	AAGCCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTCAGAAAGGAGTAGAATAT		Qу рь
11111111111111111111111111111111111111	78	Taaaaaataattgtatgtcttatatactaatatgtaataatcttcaggtgaaaaagg 		Qy Db
61 CCTCTCCAGCCCTATGGAAGTCTCAAAGGTCACGGAACCCCTAATCAGAGTGGCCAATCCC 312/ 21 TGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTATTGGGAGTAGGAGTTGCAATCCC 312/ 21 TGTGTGTGTGTTGTGTGTGTGTGTGTGTGTGTATTGGGAGTAGGAGTTGCCCTACCCCTGTC 318/ 21 TGTGTGTGTTCCTTTGTGTGTTGTGTTGTGTTTTGTGTTGT	72 72	TTCTCTAAAGGACTGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCA 		Qy Db
61 CCTCTCCAGCCCTATGGAAGTCTCAAGGTCACGGACCCCTAATCAGAGTGCCAATCCC 312/ 21 TGTGTGTCGTTCCCTTGTGTGTCTCAAGGTCACAGGTAGCACTAATCAGAGTGCCCAATCCC 312/ 21 TGTGTGTCGTTCCCTTGTGTCTGTTGTGTTATTGGAAGTAGAGTTGCTCCTCCCCTGTC 318/ 21 TGTGTGTCGTTCCCTTGTGTCTTGTGTCTTATTGGAAGTAGGAGTTGCTCCCTACCCCCTGTC 318/ 21 TGTGTGTCCCTTGTGTTCAGGACACCTGCTTATTGGGAGTTGGTCCCTCCC	999	GGTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAACAGAAACTT 		Qy Db
61 CCTCTCCAGCCCTATGGAAGTCTCAAGGTCACGGAACCCCTAATCAGAGTGGCCAATCCC 312/ 21 TGTGTGTCGTTCCCTTGTGTCTGTGTCTTATTGGGAGTAGAGTTGCCTCATCCCATGTC 312/ 21 TGTGTGTCGTTCCCTTGTGTCTGTTGTGTTATTGGGAGTAGAGTTGCTCCTACCCCTGTC 318/ 21 TGTGTGTCGTTCCCTTGTGTCTGTTGTTGTTATTGGGAGTAGAGTTGCTCCTACCCCTGTC 318/ 21 TGTGTGTCGTTCCCTTGTGTCTGTTGTCTATTGGGAGTTGCTCCTACCCCCTGTC 318/ 21 CTGGGGCTGGGTGTTTCAGGACAGCTGCTTATTGTGTCTGTC	60	GGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTCCT 		Qy Db
	5 4	TGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGCCTGGG 		Qy Db
61 CCTCTCCAGCCCTATGGAAGTCTCAAGGTCACGGACCCCTAATCAGAGTGGCCAATCCC 312 21 TGTGTGTCCCTTCCCTTGTGTCTCTTTTTTTGGAAGTAGAGTAGAGTGGCCAATCCC 312 21 TGTGTGTCCCTTGTGTCTCTTTTTTTTTTTTTTTTTTT	4 8	CCCCTACAACTCCAGCCACCCAGCCAGGAGGGGGCTGTCCAATCACATTCAGGCATGCG 		Db Qy
61 CCTCTCCAGCCCTATGGAAGTCTCAAGGTCACCGGACCCCTAATCAGAGTGGCCAATCCC 312 21 TGTGTGTCGTTCCCTTGTGTCTGTGTGTGTTATTGGGAGTAGGAGTTGCTCCCTGTC 318	42	AGCCTGTTTGGGAGGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAA 		Db Qy
	36	TIGGGGGTGCAATGATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGC 	3301 3301	dg Qy
	30	TCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTG 	3241 3241	Оу
	24	TGGGCTGGGTGTGTTTCAGGACAGCTGCTTCTGTGCATTTGTGTCTGCCTGC	3181 3181	Db Qy
	18	GTGTGTCGTTCCCTTGTGTCTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGTC 		dg Qy
1 CCTCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCC 312	12	CCTCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCC	3061 3061	Qy Db
01 ATCCCTATGTCCCAGCCCTGGTACTCCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCT 3060 	06	TCCTATGTCCCAGCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCT 	3001	Db Qy
41 TCCTCCTCCTGTTCCTGCCTTCTCTTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGAT 3000	000	CTCCTCCTGTTCCTGCCTTCTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGAT 	2941 2941	da Vo

```
polyA_signal
polyA_signal
BASE COUNT 825 a
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 3
HSU39447
LOCUS
                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
PUBMED
                                                                                              Query Match 100.0%; Score 4039.6; Best Local Similarity 100.0%; Pred. No. 0; Matches 4039; Conservative 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sig_peptide
                               1 GTCCTTCCCACCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA 60
4040 bp mRNA linear PRI 08
Human placenta copper monamine oxidase mRNA, complete cds.
U39447
U39447.1 GI:1399031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zhang, X. and McIntire, W.S.
Cloning and sequencing of a copper-containing, topa
quinone-containing monoamine oxidase from human placenta
Gene 179 (2), 279-286 (1996)
97128319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (25-OCT-1995) William McIntire, Molecular Biology Div. (151-5), VA Medical Center, 4150 Clement Street, San Francisco, CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhang, X. and McIntire, W. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens Euthazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 4040)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8972912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 4040)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="copper monamine oxidase"
/db_xref="di:1399032"
/db_xref="di:1399032"
/db_xref="di:1399032"
/db_xref="di:1399032"
/db_xref="milton"
/dl_xref="milton"
/dl_xref="milton"
/dl_xref="milton"
/d
                                                                                                                                                                                                                                                                             Ø
                                                                                                                                                                                                                                                                                                                             /note-"encodes Tyr residue that is converted quinonone cofactor" 4004. .4009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       caucasian mother" 161. .2452
                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="possible signal peptide"
1571. .1573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSHN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="placenta"
/tissue_type="placenta"
/clone_lib="CLONTECH human placenta 5'-stretch plus cDNA
library in lambda-gtll, cat. no. HL3007b"
/note="mRNA isolated from placenta of a 25-year-old
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                         1183 c
                                                                                                                                                                                                                                                                  1097 g
                                                                                                                                                                                                                                                                         934 t
                                                                                                                                                                    DB
                                                                                                 0
                                                                                                                                                                9; Length 4040;
                                                                                                                                                                                                                                                                      1 others
                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRI 08-JAN-1997
                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                   to the topa
                                                                                                 0
```

8 8	g dy	dd Qy	dg Qy	pb Qy	g qq	Qу	gg Qg	gg Qg	dg VQ	dp 64	D Q	Qy Db	Qy db	ОУ	Db Qy	gb VQ	g 4	Db
1081	1021 1021	961 961	901	841 841	781 781	721 721	661 661	601	541 541	481 481	421 421	361 361		241 241	181 181	121 121	61	.
CCCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGGCCCCGCTTCAGTGTCCAGGG 1	TGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGGTCCCTGAAGTCCCCTGTGCC 1	AGGCCGCTACTACGACAGCCTGGCCCAGCTGGAGGCCCAGTTTGAGGCCGGCC	GCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCA 9	TGGCCTCTACTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCT 9	CCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTT 8	GCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGACGGAA 7	CCGACGCCCCGTGCTGTTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGA 7	TCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCTGCCCCTATCA 6	CGTCTTCTTTGGCAGGCAACCCCAGCCCAACGTGAGTGAG	TGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCTGCCCGGGAGGCACTGGCCAT 5	CCAGGCCCGGCCCTCGGACAACTGTGTGTCTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGC 4	GCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGC 4	TGCCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGA 3	CAGGGGTGGAGATGGGGGTGAACCCAGCCAGCTTCCCCATTGCCCCCTCTGTATCTCCCAG 3	CGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGG 2	CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT 1 	GCCCCCACCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG 1	GTCCTTCCCACCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA 6
140 140	080	020 020	60	00	40	90	20	60	8 8	40	80	20	60	8 %	40	80	20	0

220	1 GACCATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACA 2	216	밁
220	ACCATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCAC	216	Qy
160	I TITCAATCAGAATGACCCTIGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGA 2	210	p 4
	GAGAGGTACCAGCTGGCTGACCCAGCGGAAGGAAGGAGGCCCAGTAGCAGCAGCAGCGT 2	2	문
100	GAGAGGTACCAGCTGGCTGTGACCCAGCGGAAGGAGGAGGAGGAGCCCAGTAGCAGCAGCGT 2	204	Qy
040	GETCAGETTIGETGGAGAGCGETGCCCCAAAACAGCTCCATGGGGAGAGGCTTCAGCTG	198	B 5
· 00	GTACCTGGCCAGCAACCACCACCACCAGGTCACCCCCGGGGCTACCGCATCCAGAT 1	92	망
980	1 GTACCTGGCCAGCAACAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGAT 1	192	Qy
920 920	1 GCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCT 1	186	β Q
	CCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAA 1	8	₽
860	CCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAA 1	180	γ
800	GGTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGT 1	1741	B 6
4	CGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTCAA 1	. 68	용
740	CGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCACACACA	1681	Qy
680	ACGATICTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTA 1	1621	Дb
680	CGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTA 1	162	Qγ
620 620	1 CTTGCTCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAAT 1	156 156	8 성
560		150:	당
560	TACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCAC 1	150:	Qγ
500	TGCCTTTTSTGTGTTTGAACAGAACCAGGGCCTCCCCCTGCGGGGACACCACTCAGATCT	1441	B 5
-4-	GGCCACCTACGTGGACTGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGA	38	B
440	GGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGA 1	1381	δ
œ		32	용
œ	. AGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACTT 1	ω 2	Ş
320	GGCCTTGGCCATCTATGGTGGAAATTCCCCAGCAGCACGAATGACGACCGCCTATGTGGATGG 1	1261	β Q
260	GGATCTTTGACGTTCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGA 1	1201	Вb
260	AAGGATCTTTGACGTTCGCCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGA 1:	1201	Qy
200	AAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCC 1	1141 1141	g Qy

99 2221 GOLAGGARA MITTOCTANACACAGTACTTGGGGAACGGGGTTCCCTCCCCCCCCCC																																	_				
2211 TGGARGGACHTCTTMACHACHATTACTTGGGGAACGGCGTGCTTCCTCCCACCACCACC 281 2221 CHALLISHING CONTROL	_		_	н		н					_	-					_					-	0			11	0		ρ.	ы	0		0		o.		۵
221 TRORAMORANTICCTMACACHAGRACTICGGGAACGGCTTGGTTCTCCCCACCC 228 221 TRORAMGRACHTCTTAACACHAGTGACTTGGGGAACGGCTTGGTTCTCCCAACC 228 221 CTATAACTTCTTTGAGCAACACCCCTCTCTTCTTGCGCCACTCCACTCCTTCCT	•													-		•				_	-			-	•								•				N
COCAGAGAATTCCTTANCACATCCTACTGTGGGGAACGGGGTGGGGT	ù	N	N		-	-	\vdash	Ö	0	0	ö	94	9	88	œ	8	œ	76	7	7	7	σ	6	5	5	Ü	Ü	46	46	401	01	41	41	81	18	21	221
	TIGGGGGIGCAAIGATAAIGAAGAAIGGCCAIITIGIACCAGGGCICIGIAIICIGCAA 336	TCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCTCAAGTTAGCATTTCAAGTGA 330	TCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTGA 330	TGGGCTGGGTGTGTTTCAGGACAGCTGCTTCTGTGCATTTGTGTCTGCCTGC	TGGGGCTGGGTGTGTTTCAGGACAGCTGCTTCTGTGCATTTGTGTCTGCCTGC		GIGICGTTCCCTTGTGTCTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGTC 318	TCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCC 312	ICTCCAGCCCTATGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCC 312	TCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCT 306	TCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCT 306	CCTCCTCCTGTTCCTGCCTTCTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGAT 300	CCTCCTCCTGTTCCTGCCTTCTTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGAI 300	ATTCCCTCTCATCCAGGTCCTTTCCTTCTCGTCTTCTCTCTC	ATTCCCTCTCATCCAGGTCCTTTCCTTCTCGTCTTCCTCTCTCT	CAGAGTAGGGTTGCCAGCCCTGCAAGTCCATAGCTGAGCTGGAAAGGATGCTTCTGCTC 288	CAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCTGAGCTGGAAAGGATGCTTCTGCTC 288	TCCCGAATCTTTTTAGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACC 282	TCCCGAATCTTTTTAGGCCACCTCCAAGGACTCTAAAAGGGGGGCTATTCCCTGGAGACC 282	CCAGCCTGGAGCCGTGGCCGAGGGCTTCCCTAGATGGTTCCCTTTGTTGCTGTCTGGCT 276	CCAGCCTGGAGCCGTGGCCGAGGGCTTCCCTAGATGGTTCCCTTTGTTGCTGTCTGGCT 276	ACACTGAACCTTGTTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCATGG 27	ACACTGAACCTTGTTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCCAGGCATGG 27	CTCCCTCGCATCCGCCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGGG 264	CTCCCTCGCATCCGCCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGAGG 264	CACTGGGCCGGCAGCCTGGTTCCCTCTTTCCTGTGCCAGGACTCTCTTTCTT	CACTGGGCCGGCAGCCTGGTTCCCTCTTTCCTGTGCCAGGACTCTCTTTCTT	GGATGGGGCATGTGGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGG 252	GGATGGGGCATGTGGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGG 252	TGTGCCCCGACCTCCCTGCCTTCTCCCCACGGGGCTTCTCTCACAACTAGGCGGTCCT 246	TGTGCCCCCGACCTCCCTGCCTTCTCCCACGGGGCCTTCTCTCTACAACTAGGCGGTCCT 246	GACCAGGATGCTGGGGCCTGCGAGGTCAACCCCCTAGCTTGCCTGCC	GACCAGGATGCTGGGGGCCTGCGAGGTCAACCCCCTAGCTTGCCTGCC	TATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGG 234	TATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGG 234		GCAGAGGACATTCCTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACC 22

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                 KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                      DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                       RESULT 4
AF067406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                              Pocus
                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3301
                                                                                                                                                                                                                                                                                                                                                                                                                                         3841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3841
                                              M Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; V
Mammalia; Eutheria; Primates; Catarrhini;
1 (bases 1 to 2501)
Smith,D.J., Salmi,M., Bono,P., Hellman,J.
Cloning of vascular adhesion protein 1 re
multifunctional adhesion molecule
J. Exp. Med. 188 (1), 17-27 (1998)
98317014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTAAAAAATAATTGTATGTATGTCTTTATATACTAATATGTAATAATCTTCAGGTGAAAAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITCTCTAAAGGACTGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAGAAACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGCCTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGGGGAACCAGTAGGTTGAGGACAGGAGAGGGGAAGGGTCTTAACACCTTACACCCTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                    GAGGGGAACCAGTAGGTTGAGGACAGGAGGGGAGGGTCTTAACACCTTTACACCCCTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGCCTGTTTGGGAGGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCAAAAAAAAAAAAAAAAA 4040
                                                                                                                                                                                                                                                                                                                                                                 TACATTTTGAATTTTGAACCATGTGACTGTATTACCTATTCAAAATAAACAATAAATGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGCCACAGAAATGTGTWTAGCGCACTTCCCCATTTGTGTTTCAGAAAGGAGTAGAATATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGCCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTTCAGAAAGGAGTAGAATATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCCCTGGCCTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                       AACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGGTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAGAAACTTT
2 (bases 1 to 25 Smith, D.J., Salmi Direct Submission
                                                                                                                                                                                      Homo sapiens vascular adhesion AF067406 AF067406.1 GI:3283369
                                                                                                                                                               Homo sapiens.
                                                                                                                                                                                                                          AF067406
          to 2501)
Salmi, M.
            Bono,
                                                                                                                                                                                                                            2501
            ۳
.
                                                                                                                                                                                                                         đđ
                                                                                                                     Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                             protein-1
           Hellman,J.,
                                                                                  ,J., Leu,T.
reveals a
                                                                                                                                                                                                           linear
(VAP1) mR
            Leu,T.
                                                                                                                                                                                                            mRNA,
                                                                                               and
           and
                                                                                                                                                                                                            PRI 14-NOV-2001
A, complete cds.
           Jalkanen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3420
                                                                                                                                                                                                                                                                                                                                        4020
                                                                                                                                                                                                                                                                                                                                                                4020
                                                                                                                                                                                                                                                                                                                                                                                        3960
                                                                                                                                                                                                                                                                                                                                                                                                                                       3900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3540
```

```
δÃ
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                               Ωy
                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
밁
                      20
                                                             밁
                                                                                       Ωy
                                                                                                                           밁
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Sim
Matches 2501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
 421
                             501
                                                                                              441
                                                                                                                                                                  381
                                                                                                                                                                                                   241
                                                                                                                                                                                                                                    321
                                                                                                                                                                                                                                                                                                      261
                                                                                                                                                                                                                                                                                                                                     121
                                                                361
                                                                                                                               301
                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                     201
                                                                                                                                                                                                                                                                                                                                                                                                                                       141
                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCAACAGAGCCCCCGTCTTGCTGCCGTGAGAATACATTGCTCTCCTTTGGTTGAATCAG 140
                                                                                                                                                                                                                                                                                                                                                                                                  CTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCTCGTGCTCCTCATTCTGGCCG 200
                                                                                                                                                                                               TCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGGCAGGGGTGGAGATGGGGGTG
            ACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTGCCCAAGGCTGCAGCCCTGGCTCACTTGG
                                                                                                                                                  TTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGCCCAGGCCCAGGCCCTCGGACA 440
                                                                                                                                                                                                                                                                                     AACCCAGCCAGCTTCCCCATTGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACC
                                                                                                                               TTCTGACCCAGCGGCTGGGCCAGGCCTGGTGGATGCAGCCCAGGCCCGGCCCTCGGACA
                                                                                                                                                                                                                                                                   AACCCAGCCAGCTTCCCCATTGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACC
                                                                ACTGTGTCTTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (20-MAY-1998) BioTie Therapies Ltd, Tykistokatu FIN-20520, Finland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       h 61.9%; Sı
Similarity 100.0%; J
Ol; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LIPARAJAHLDRGSPPAREALTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQ
GPLEPKAAALAHLDRGSPPAREALTAIVFFGRQPQPMVSELVVGPLCHPSYMBDVTVERH
GGPLEPYHRRPVLFQEXVLDIQMIFMRELPQASGLLHHCCEYKHRGRNLVTMTTAPRGL
QSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQ
LEAQFEAGLVNVVLIPONGTGGSWSLKSPVPPGPAPELQFYPQGPRFSVQGSRVASSL
WTESFGLGAFESGRFIDVFRGQERLVVEISLQBALAIVGGNSPAAMTTRVDGFGNG
KYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNGGLPLRRHHSDLYSH
YFGGLAETVLVVRSMSTLLNYDVVWDTVFHPSGAIEIRYATGYYSSAFLFGATGKYG
NQVSBETLGTYVHTSSHFKVDLDVAGLEMWYWAEDDWFVPMAVWSSPEHQLARLOFTGR
KLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
FSWERYQLAVTQRKEEEPSSSSYFNQNIDWAPTVDFSDFINNETIAGKDLVAWTAGF
LHIPHAEDIPWTVUNGNGFFELRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLA
CLPQAAACAPDLPAFSHGGFSHN"
536 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="YAP1"
/EC_number="1.4.3.6"
/note="semicarbazide sensitive amine oxidase;
copper-containing amine oxidase homolog"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MNQKTILVLLILAVITIFALVCVLLVGRGGDGGEPSOLPHCPSV
SPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="vascular adhesion protein-1"
/protein_id="AAC25170.1"
/db_xref="GI:3283370"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="VAP1"
81. .2372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="17"
/map="17q21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="lung"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       s; Score 2501; D
s; Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 2501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ģ
                                                                                                                                                                                                                                  380
                                                                                                                                                                                                                                                                                                   320
                                                                                                                                                                                                                                                                                                                                    180
                                                                                              500
                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                 240
                                                                                                                               360
                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

1700	ACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCAGAGC	1641	Qy
1560	GGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAATACGATTCTATGCCACGGGC	150	망
1640	TGTGGGATACGGTCTTCCACCCCAGTGGGGCCCATAGAAATACGATTCT	1581	Qy
50		44	gg ,
1580	GTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCACCTTGCTCAACTATGACTAT	1521	γ
44		w	뫄.
1520	GAACCAGGGCCTCCCCTGCGGCGACACCACTCAGATCTCTACTCGCACTACTTTGGG	4	γo
1380		1321	gg
1460	CTTCCTTTTGGAGTCCCAGGCCCCAAGACAATACGTGATGCCTTTTGTGTGTTTGAA	1401	Qγ
1320	ACACCACGCCCTGACCCGTGGGGTGGACTGCCCCTACTTGGCCACCTACGTGGACTGGC	1261	В
1400	CACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACTTGGCCACCTACGTGGACTGG	1341	γo
1260	GAAATTCCCCAGCAGCAATGACGACCGCTATGTGGATGGA	1201	B 2
. 20	TCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGAGGCCTTGGCCATCTATGGT	.14	ğ
	TCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGAGGGCCTTGGGCCATCTATGGTG	N	Qy
1140	TGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGTTCGCT	1081	В
1220	TGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGTTCGC	1161	Qy
1080	TACAGTTCTATCCCCAAGGCCCCCCCTTCAGTGTCCAGGGAAGTCGAĞTGGCCTCCTCAC	1021	밁
1160	ACAGTTCTATCCCCAAGGCCCCCCCTTCAGTGTCCAGGGAAGTCGAGTGGCCTCCTCAC	1101	δ
1020	A TOSCACAGGTGGGTCCTGGATCCCTGAAGTCCCCTGTGCCCCCGGGTCCAGCTCCCCCTC	961	B 5
5 6	UBCCCCCBCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	2 4	2
1040	TGGCCCAGCTGGAGGCCCAGTTTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACA	0 00	S
900	TTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCAAGGCCGCTACTACGACAGCC		밁
980	TTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCAAGGCCGCTACTACGACAGCC	921	Qy
840	CGGGCCCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCTGCTAGTGAACCACAAGGCCC	781	DB DB
920	GGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCTGCTAGTGAACCACAAGGCCC	861	γ
780	THE THE TRANSPORT OF TH		뭥
860	TCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTTTGGCCTCTACTACAACATCT	108	QY
720	TTCTCCACCACTGTTGCTTCTACAAGCACCGGGACGGAACCTGGTGACAATGACCACGG	661	g
800	TCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAACCTGGTGACAATGACCACGG		Qy
660	AAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGAGCTGCCCCAGGCTTCTGGGC	601	D _D
740	AGTACCTGGACATAGACCAGATGATCTTCAACAGAGAGCTGCCCCAGGCTTCTGGGC	681	Qy
0	ACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCTGTTCC	541	B 3
0 4		ن د	? ;
620 540	. DESCRIBAÇÃE DO TOTO TOTO TOTO TOTO TOTO TOTO TOTO	561	3 5

CARCECTREGGEAGGTCTACACCACAGCGCACTTCAAGGTTATACATCAGCACCACAGCGCACAGGGATATGGTCTTTCAATCAGCIIIIIIIIII	INTERCOLOGIC CONTROL C
CCACAGGCCCACTTCAAGGTGGATTCAAGGTGGATTTGTTCCCCATGGCGGAGGATATTGGTCTTTGTTCCCCATGGCGGAGGTTGTTGTTCCCCATGGCGGAGGTGATGCTTGTTCCCCATGGCGGAGGTGACCTGGCGCACCCCTCGCTACCTGGCAGGCTGCCACCCCTCGCTACCTGGCGGGGCTACCCTGCACCCTGCCACCCCTCGCAAGCTGCTACCTGGGGGGCTACCCTACCAGATGCTACCTGGGGGCTACCCCTACCAGATGCTACCTGGGGGGGCTACCCCTACCAGATGCTACCTGGGGGGGCTACCCCAGTAGCAGCTTCAAGCTGGGAGGGGCTTCAACCAATGAGACCATTTCAATGGGCAGGCTTCAACCAATGAGACCATTTTCAATGGGCAGAGCTTCAACCAATGAGACCATTTTCAATGGGCAGACCATTCAACCAATGAGACCATTTTCTTCTTCATCAACCAATGAGACCATTTTTCTTCTTCAATCAA	CCACAGGCCCACTTCAAGGTGGATCTGGATGTAGCCCTACAGGGCCCACTTCAAGGTGGATCTAGCCTTGAAGGTGGATCTAGCCTTGAAGGTGGATCTAGCCCTAGGATGTAGCCCTGGAAGATATAGGTCTTTGTCCCCATTGGCCTTGGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAAGATGAACCAAGAAGCACCCCTCGCTAACCTGTAACCTGGCAAGCTTGTGAAGATGAACCAAGATGCCAACCAA

RESULT 5
AK025727
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE

AK025727

AK0257

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                S
                                                                                                                                                                     δδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
            В
                                                                                                                    В
                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 2280; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1756 AGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTTGTCCCCATGGCTGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1816
                                                                                                                                                                                                                                                                                                     1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                               426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     306
                                                                                                                          546
                                                                                                                                                                                                                                              486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGA 1875
CCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGAGACCATTGCTGGAAA 2175
                                                                                                                 GGCTGTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGCAGCGTTTTCAATCAGAATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCCACCCCTCGCTACCTGTACCTGGCCAGCAA 1935
                                                                                                                                                                                                                                                                 AGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTGGGAGAGGTACCAGCT
                                                                                                                                                                                                                                                                                                                                                      CCACAGCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGG
                                                                                                                                                                                                                                                                                                                                                                                     CCACAGCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCAGGACTGGAGAACTGGGTCTGGGCCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCC
                                                                                                                                                                                                                                     AGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTGGGAGAGGTACCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NEDO human cDNA sequencing project supported by Ministry of International Trade and Industry of Japan; cDNA full insert sequencing: Research Association for Biotechnology; CONA library construction, 5'- & 3'-end one pass sequencing: Departent of Virology and Human Genome Center, Institute of Medical Science, University of Tokyo (partly supported by Science and Technology)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (29-AUG-2000) Sumio Sugano, Institute of Medical Scientifice (29-AUG-2000) Sumio Sugano, Institute of Medical Scientifice (29-AUG-2000) Sumio Sugano, Institute of Medical Scientifice (20-August 19-August 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 (bases 1 to 2538)
Sugano, S., Suzuki, Y., Ota, T., Obayashi, M.,
Shibahara, T., Tanaka, T. and Nakamura, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Okamoto,S., Okitani,R., Ota,T., Suzuki,Y., Obayashi,Shibahara,T., Tanaka,T., Nakamura,Y., Isogai,T. and NEDO human CDNA sequencing project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kawabata, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  clone: HEP11945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="highly similar to HSU39447 monamine oxidase mRNA" 887 c 696 g 601 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="HEP11945"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="cloning vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /cell_type="hepatoma"
/clone_lib="HEP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /cell_line="HepG2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hikiji, T., Kobatake, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56.4%;
99.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 2277; D: Pred. No. 0; O; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PME18SFL3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Inagaki,H., Ikema,Y.,
ki,Y., Obayashi,M., Nishi,T.,
, Isogai,T. and Sugano,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nishi, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              placenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Isogai,T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           copper
                                                                                                                                                                        2115
                                                                                                                                                                                                                                  545
                                                                                                                                                                                                                                                                                               2055
                                                                                                                                                                                                                                                                                                                                                         485
                                                                                                                                                                                                                                                                                                                                                                                                                1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1815
                                                                                                                    605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Science,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
밁
                                                                                                                                                            οy
                                                                                                                                                                                              δõ
В
              Ş
                                  д
                                                 Š
                                                                     В
                                                                                     QΥ
                                                                                                        밁
                                                                                                                      οy
                                                                                                                                                                               밁
                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                   3136
1686
                 3196
                                  1626
                                                                      1566
                                                                                      3076
                                                                                                        1506
                                                                                                                          3016
                                                                                                                                            1446
                                                                                                                                                             2956
                                                                                                                                                                              1386
                                                                                                                                                                                                2896
                                                                                                                                                                                                                   1326
                                                                                                                                                                                                                                    2836
                                                                                                                                                                                                                                                     1266
                                                                                                                                                                                                                                                                      2776
                                                                                                                                                                                                                                                                                        1206
                                                                                                                                                                                                                                                                                                         2716
                                                                                                                                                                                                                                                                                                                          1146
                                                                                                                                                                                                                                                                                                                                            2656
                                                                                                                                                                                                                                                                                                                                                              1086
                                                                                                                                                                                                                                                                                                                                                                               2596
                                                                                                                                                                                                                                                                                                                                                                                                1026
                                                                                                                                                                                                                                                                                                                                                                                                                 2536
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2176
                                                                                                                                                                                                                                                                                                                                                                                                                                   966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 666
                                CCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGGGGACACTGAACCTTGT 2655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCCTGTGTGTCCTTCCCT
                                                                                                      CCCCTGGTACTCCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCTCCCTCTCCCAGCCCTAT
                                                                                                                                                                                                                                                             AGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCCTGGAGACCCCCAGAGTAGGGTTGC
                                                                                                                                                                                                                                                                                                 TGGCCGAGGGCTTCCCCTAGATGGTTCCCCTTTGTTGCTGTCTGGCTTTCCCCGAATCTTTTT
                                                                                                                                                                                                                                                                                                                                     TGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCATGGCCCAGCCTGGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                              GCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGGGCACTGGGCCAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCTGCCTTCTCCCACGGGGGCTTCTCTCACAACTAGGCGGTCCTGGGATGGGGCATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCCTGTGTGTCGTTCCCT 3135
                                                                                                                                         TGCCTTCTTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCAG
                                                                                                                                                           TGCCTTCTCTTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCAG
                                                                                                                                                                             CAGGTCCTTTCCTCGTCTTCCTCTCTCTCACCTACTTCCTCCTCCTCCTCCTGTTCC
                                                                                                                                                                                                                                                                                       TGGCCGAGGGCTTCCCTAGATGGTTCCCCTTTGTTGCTGTCTGGCTTTCCCGAATCTTTTT
                                                                                                                                                                                                                                                                                                                          TGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCCATGGCCCAGCCTGGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                GCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGGGCACTGGGCCGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCTGCCTTCTCCCACGGGGGCTTCTCTCACAACTAGGCGGTCCTGGGATGGGGCATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGCCACCTCCAAGGACTCTAAAAAGGGGGCTATTCCCTGGAGACCCCCAGAGTAGGGTTGC
1745
                                                                     1625
                                                                                                                        3075
                                                                                                                                          1505
                                                                                                                                                            3015
                                                                                                                                                                                               2955
                                                                                                                                                                                                                 1385
                                                                                                                                                                                                                                                    1325
                                                                                                                                                                                                                                                                                       1265
                                                                                                                                                                                                                                                                                                                         1205
                                                                                                                                                                             1445
                                                                                                                                                                                                                                                                                                                                                                                               1085
                                                                                                                                                                                                                                                                                                                                                                                                                2595
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2415
                                                                                                                                                                                                                                                                                                                                                                                                                                 1025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    965
```

Š

3256

GATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTGATTTGGGGGGTGCAATG

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           γQ
         REFERENCE
AUTHORS
TITLE
                                                                 SOURCE
ORGANISM
                                                                                             ACCESSION
VERSION
                                                                                                                                          RESULT 6
AB019242
                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                          DEFINITION
                                                                                                                                                                                                 S
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                         ő
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                               δ
                                                                                    KEYWORDS
                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1806
                                                                                                                                                                                                                                                                                                                                                                                            3736
                                                                                                                                                                                                                                                                                                                                                                                                               2166
                                                                                                                                                                                                                                                                                                                                                                                                                               3676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2046
                                                                                                                                                                                 2526
                                                                                                                                                                                                    4036
                                                                                                                                                                                                                      2466
                                                                                                                                                                                                                                                           2406
                                                                                                                                                                                                                                                                              3916
                                                                                                                                                                                                                                                                                                2346
                                                                                                                                                                                                                                                                                                                  3856
                                                                                                                                                                                                                                                                                                                                                                         2226
                                                                                                                                                                                                                                                                                                                                     2286
                                                                                                                                                                                                                                                                                             ATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGGGAGGGGAACCAGTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGGGGACAAAGAATAGCAAGAGATGAGAAACAACAGAAACTTTTTTCTCTAAAGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTGCTGAGGTCTGGATTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCCAAAGCCCCTACAACTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTGAGGACAGGAGAGGGAAGGGTCTTAACACCTTACACCCTTTTGTACATTTTGAATTTT 3975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTGAGGTCTGGATTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGCAACAGCCTGTTTGGGAG
                                                                                                                                                                                 AAAAA
                                                                                                                                                                                                  AAAAA 4040
                                                                                                                                                                                                                                                           GTTGAGGACAGGAGGGGAAGGGTCTTAACACTTACACCCTTTTGTACATTTTGAATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAACAACTTTTTTCTCTAAAGGACT
                                                                         semicarbazide-sensitive amine oxidase; SSAO. Bos taurus tissue_lib:Aorta cDNA to mRNA.
Iwabuk1, H., Matsumura, K., Mure, M., Kuroda, S.
Molecular cloning of semicarbazide-sensitive
from Bovine aorta
                                                                                                                        Bos taurus
                                                                                            AB019242.1 GI:6682824
                                                                                                       AB019242
                                                                                                                                   AB019242
                                     Bovidae; Bovinae;
                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                            (sites)
                                                                                                                                                                                 2530
                                                                 taurus
                                                                                                               cds.
                                                                                                                         SSAO mRNA for semicarbazide-sensitive
                                      Bos.
                                                                                                                                 3624 bp
                                                                                                                                   MRNA
                                                                                                                                   linear
         and Tanizawa, K. amine oxidase o
                                                                                                                         amine oxidase,
                                                                                                                                   MAM
                                                                                                                                   07-JAN-2000
                                                                                                                                                                                                                                                                                                                                                      3855
                                                                                                                                                                                                                                                                                                                                                                                                                               3735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1805
                                                                                                                                                                                                                                                           2465
                                                                                                                                                                                                                                                                                               2405
                                                                                                                                                                                                                                                                                                                  3915
                                                                                                                                                                                                                                                                                                                                   2345
                                                                                                                                                                                                                                                                                                                                                                                                              2225
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2045
          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL REFERENCE
                   밁
                                  Qy
                                                       В
                                                                     .0
                                                                                             뫄
                                                                                                              Qy
                                                                                                                                 В
                                                                                                                                                  δÃ
                                                                                                                                                                      В
                                                                                                                                                                                       Š
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
                                                                                                                                                                                                                                                 Query Match 47.9%;
Best Local Similarity 73.5%;
Matches 2607; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                     131
                                                                                                                                                                        103
 371
                   340
                                                        280
                                                                          251
                                                                                             220
                                                                                                                191
                                                                                                                                   160
                                                                                                                                                                                         71
                                                                                                                                                                                                            45
                                                                                                                                                                                                                               11
                                                                                                                                                                      CCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGAGCCCCCACC
                                                                 GATGGGGGTGAACCCAGCCAGCTTCCCCATTGCCCCTCTGTATCTCCCCAGTGCCCAGCCT
                                                                                             ATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGGCAGGGGTGGA
                  GTTGAATCAGCTGTCCCTCCTTCGTGGGAAAATGAACCAGAAGACAATCCTCGTGCTCCTC
 GTGATGCGCTTTCTGACCCAGCGGCTGGGGGCCAGGGCTGGTGGATGCAGCCCCAGGCCCGG
                                                       CATGGGGGTGAAGCCAGCCAACCTCACTACTGCCCCTCCGGAACCCCCAGTGTCCAGCCC
                                                                                                                                  TCGATCCTCTGTCTCTGTAATCACGGGACCATGAACCAGAAGACCACCCTGGTGCTCCTT
                                                                                                                                                                                                                                                                                                710
                                                                                                                                                                                                                                                                                                ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  190. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .3624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .3624
                                                                                                                                                                                                                                                                                                1070 c
```

888;

Indels

51,

Gaps

9

70

159

370

399

310

```
Submitted (27-OCT-1998) Shun-ichi Kuroda, Department of Structural Molecular Biology, Institute of Scientific and Industrial Research, Osaka Univ.; 8-1 Mihogaoka, Ibaraki, Osaka 567-0047, Japan (E-mail:skuroda@sanken.osaka-u.ac.jp, Tel:+81-6-879-8461, Fax:+81-6-879-8464)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished

(Dases 1 to 3624)

(Dases 1 to 3624)

Iwabuki H., Matsumura, K., Kuroda, S. and Tanizawa,

Direct Submission
                                                                                                                                                                              /translation="MNOKTILVLLALAVITIFALVCVLIAGRGGDGGEASOPHYCPSG
/translation="MNOKTILVLLALAVITIFALVCVLIAGRGGDGGEASOPHYCPSG
/translation="MNOKTILVLLALAVITIFALVCVLIAGRGGDGGEASOPHYCPSG
/translation="MNOKTILVLLALAVITIFALVCVLIAGRGGDGGESOPHYCPSG
LEPKAALAHLDRRSPPPAREALAIVERGGGOPOPHYTELVVGPLOPSYMRDVTVERH
GGPLPYYRRPVLLEYLDIDQMIFNRELPQAAGYLHHCCSYKQGGGNLVTMTTAPRGL
QSGDRATWFGLYYNISGAGYYLHPVGLELLVDHKALDPAQMTIQKVFFGGRYYESLAQ
LEEQFEAGRYNVVVIPNNGTGGSWSLKSQVPPGFTPPLOFHPGGTRFSVOGSRVTSSL
WTFSFGLGAFSGPRIFDIRFQGGRLAYELSLQEAVAIYGGNTPAAMLTRYMDGCFGMG
KFATPLTRRGUDCPYLATYYVDHIFLLESQAPRTLHDAFCYFEQNKGLPLRRHHSDTISQ
YFGGVVFTVLVFRSVSTLLNYDYVMDMYFHPNGAIEVKFHATGYISSAFFFGTAQKYG
NQVRENTLGTYHTHSAHYKVDLDVGGLENWVWAEDMAFVPTTVPMSPEHQIQRLQVTR
KQLETEEQAAFPLGGASPRYLYLASKQSNKWGHPRGYRIQTVSFAGRPLPQNSSTERA
ISMGRYQLAVTQRKETEDSSSSVFNQNDPWTPTVDFADFINAGKDLVAWVTAGF
LHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDFSINSADSIYFQKHQDAGSCEVNSLA
CLPKDPACAPDLPAFSHGGFFTN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="semicarbazide-sensitive
/protein_id="BAA8896.1"
/db_xref="GI:6682825"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Membrane-bound protein,
homolog, Vascular Adhesion Prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Bos taurus"
/db_xref="taxon:9913"
/tissue_lib="Aorta"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="SSAO"
/EC_number="1.4.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="SSAO"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="SSAO"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2481
Score 1933.2;
Pred. No. 0;
0; Mismatches
                                                                                                                                                        1006
                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .
6
                                                                                                                                                        838
                                                                                                                                                        ς+
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein
                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bovine Serum Amine Oxidase
tein homolog, Quinoprotein"
                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amine
                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oxidase"
                                                                  3624;
```

DB 1480 GTGTTTGACCAGAACAAGGCCTGCCCCTGAGGCGACACCACTCAGATTTATTCCCCAG 1539 QY 1511 TACCTTGGGGGTCTTGGGGAAAGGCCTGCAGACTCAGATTTATTCCCCAG 1539 QY 1512 TACCTTGGGGGTCTTGGGGAAAGGCTCCTGGGCCAAACACCTTCCACCTTGCTCAACCTTGCTAACCAAAAAAACCAACC
SITTRGGGGGTCTTGGGGGAAAGGGCCTGAGGGGACACCACTAGATTTTATTTCCAAC SITTRGGGGTCTTGGGGGAAACGGGTCGTCGTCGTCGTCAGATTTTTTTGGTCGTCAACTTAGATCTAGTCCAACTTAGTTCCAACTTGGTCGTTGTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTCGTCAACTTGGTTGTTTGT

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
RESULT 7
AC046171/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                               밁
                                                                                                                                                                             õ
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2918
                                                                                                                                                                                                               3454
                                                                                                                                                                                                                                                3393
                                                                                                                                                                                                                                                                                                                                               3334
                                                                                                                                                                                                                                                                                                                                                                                                                3276
                                                                                3572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTTTTGTCTTTGCCTTTCCCCAAATAGTTTTAGGCCATGCCAGGTCTCTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTCCCTTTGTTGCTGTCTGGCTTTCCCGAATCTTTTTAGGCCACCTCCAAGGACTCTAA 2797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGAGCCGTGGCCGAGGGCTTC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTGTTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGG----CCAGGCATGGCCCAGC
                                                                                                                                                                                                                                                                                                                                             GCTCAAGTTAGCATTTCAAGTGATTTGGGGGTGCAATGATAATGAAAAATGGCCATTTTG 3337
                                                                                                                                                                                                                                                                                                                                                                                                                               CATTTGTGTCTGCCTGCTCATGCTCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCA 3277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGGAGCCGCCCTTCCCCCAGTCCAGGGGCAGG-GTGTTTCCCCCACAGTTCTTTCTGCC 3275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCTAATCAGAGTGGCCAATCCCTGTGTGTCGTTCCCTTGTGTGTTGCTTATTGGGAG 3157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGGGGGCTATTCCCTGGAGACCCCCAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGAGTCATGGTTACACGTTTCTACAAGACTCCTCGGTTTTGGTGTTTTTCATTTTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTGTGCACCCCAACTTGCTGGGTTCCTGTCGCAGAGGAGGAACGGTCAGCCAAGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTTACCGCCTCACTGGGATCATCCTGAAGCTATGCTGCCTGAATCAGGGGCTTCTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCCGCCTCTGAGCCAGGAGCCTCCTGACCCCTGTGATGCCTGACACAGGGGACACTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                              CATTTGTATAGGCCTG--TCTTGCATCCTCTTGCAGAGGATGCTCATGGAGACAGCAGCA 3333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TAGGAGTTGCTCCTACCCCTGTCCTGGGGCTGGGTGTTTTCAGGACAGCTGCTTCTGTG 3217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGTTCCTCAGCTCTCACTTTTCAACTCTGGTCTCCTCT-CCTGACTCTAGGCCTGTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGTTTTCAGTCAAGTTCCGTCTCCTCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCCTCCTG--TTCTTACCTATTCTTATAACCTGGGATTTACATCCCAGCCCTGAGGAGA 3097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCTTTGGCCCATGTTTCCTCTCATCCTGGTCCTCCTTCTCCCCTCTTCCTTGCCTCAC 3039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTCTCTCACCTACTTCCTCCTCCTCCTCCTGTTCCTGCCTTCTCTTCTATCCTGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCTAG 3518
                                                                                                                                                                 GGCTGTCCAATCACATTCAGGCATGCGAATGAGCTGGGCCCCTGGGTGAGGTGGGGGTCTG
                                                                                                                                                                                                               GGGTGAAAGCCAAGGGTGAGAAGCAGAAAGACCAGTCACACCA - - TGCCATGGGGCCAGG
                                                                                                                                                                                                                                                TACCAGGGCTCTGTATTCTGCAACAGCCTGTTTGGGAGGCTGGAATGGAAA-----CAAA 3392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGAGGCCGTGGGCAGGGTTCCTGGCAGGCTTGTGAATCCAGGAGTCCAGCTGGAAGGGGC
                                                                                CCACAG
                                                                                                                                                                                                                                                                                TGCCAGGTGTGTGGTGACCAGGGTCCTCTGAACTTGGCAATAGCCAACATAGGTGACT 3453
                                                                                                                                               GGCGGACCAATTACGTGTGAGCATGCAAATGAGCCAGGGCCTCTGTGGGGTGGAGCCTCCC
DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----CCTAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2650
                                                                                                                                                                               3512
                                                                                                                                                                                                              3511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
```

189149 ģ

HTG

03-MAR-200

1 11116: contig of 11116 bp 11117 11216: gap of 100 bp 11217 13252: contig of 2036 bp i

ij

```
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dodge, S., Domino, M., Doyle, M., Ferreira, P., FitzHugh, W., Gage, D., Galagan, J., Gardyna, S., Ginde, S., Goyette, M., Graham, L., Grand-Pierre, N., Grant, G., Hagos, B., Heaford, A., Horton, L., Howland, J.C., Illav, I., Johnson, R., Jones, C., Kann, L., Karatas, A., Klein, J., Larocque, K., Lamazares, R., Landers, T., Lehoczky, J., Levine, R., Lieu, C., Liu, G., Locke, K., Machdonald, P., Marquis, N., McCarthy, M., McEwan, P., McGurk, A., McKernan, K., McPheeters, R., McCarthy, M., Meneus, L., Mihova, T., Miranda, C., Mlenga, V., Morrow, J., Murphy, T., Naylor, J., Norman, C.H., O'Connor, T., O'Donnell, P., O'Neil, D., Olivar, T.M., Oliver, J., Peterson, K., Pierre, N., Pisani, C., Pollara, V., Raymond, C., Riley, R., Rogov, P., Rothman, D., Stange-Thomann, N., Schauer, S., Severy, P., Spencer, B., Stange-Thomann, N., Stojanovic, N., Subramanian, A., Talamas, J., Tesfaye, S., Theodore, J., Tirrell, A., Travers, M., Trigillo, J., Vassiliev, H., Viel, R., Vo, A., Wilson, B., Wu, X., Wyman, D., Ye, W.J., Viene, Subring, S., Zalnoun, J., Zimmer, A., and Zody, M.
                           Center project name: 17946
Center project name: 17946
Center clone name: 948_G_15
Center clone name: 948_G_15
Center clone name: 948_G_15
Center clone name: 948_G_15
Sequencing vector: M13; M77815; 40% of reads
Sequencing vector: Plasmid; n/a; 60% of reads
Sequencing vector: Plasmid; n/a; 60% of reads
Chemistry: Dye-terminator: Big Dye; 100% of reads
Consensus quality: 1859448 bases at least Q40
Consensus quality: 185945 bases at least Q20
Consensus quality: 185945 bases at least Q20
Insert size: 197849; sum-of-contigs
Quality coverage: 10.0 in Q20 bases; agarose-fp
Quality coverage: 10.1 in Q20
NOTE: This is a "working draft' sequence. It currently
consists of 14 contigs. The true order of the pieces
is not known and their order in this sequence record is
arbitrary. Gaps between the contigs are encord as
truns of N, but the exact sizes of the gaps are unknown.
This record will be updated with the finished sequence
the preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Birren, B., Linton, L., Nusbaum, C., Lander, E., Abraham, H., Allen, Anderson, S., Baldwin, J., Barna, N., Bastlen, V., Beda, F., Boguslavkly, L., Boukhgalter, B., Brown, A., Burkett, G., Campoplano, A., Castle, A., Cheepel, Y., Colangelo, M., Collins, S., Collymore, A., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Collymore, A., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Cooke, P., DeArellano, K., Dewar, K., Diaz, J. S., Cooke, P., Dewar, M., Dewar, K., Diaz, J. S., Cooke, P., Dewar, M., Dewar, K., Diaz, J. S., Cooke, P., Dewar, M., Dewar, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 189149)
Birren,B., Linton,L., Nusbaum,C. and Lander,E.
Homo sapiens chromosome 17, clone RP11-948G15
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens chromosome 17 clone RP11-948G15 map SEQUENCE, 14 unordered pieces. AC046171 AC046171.3 GI:13184209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
Submitted (13-APR-2000) Whitehead Institute/MIT Center for Genome Submitted (13-APR-2000) Whitehead Institute/MIT Center for Genome Research, 320 Charles Street, Cambridge, MA 02141, USA On Mar 2, 2001 this sequence version replaced gi:7712190. All repeats were identified using RepeatMasker: Smil repeats were identified using RepeatMasker: Smil repeats were peen, P. (1996-1997)
Smit, A.F.A. & Green, P. (1996-1997)
http://ftp.genome.washington.edu/RM/RepeatMasker.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
be preserved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 189149)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Web site: http://www-seq.wi.mit.edu Contact: sequence_submissions@genome.wi.mit.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Center: Whitehead Institute/ MIT Center for Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center code: WIBR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HTGS_PHASE1; HTGS_DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -- Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WORKING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Allen, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DRAFT
```

```
Š
                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                   Query Match
Best Local Similarity
Matches 1855; Conserv
                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                   AGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTC
62075 62174: gap of 100 bp
62175 70797: contig of 8623 bp in length
70798 70897: gap of 100 bp
92634: contig of 21737 bp in length
92635 92734: gap of 100 bp
92735 106944: contig of 14210 bp in length
106945 107044: gap of 100 bp
107045 129146: contig of 22102 bp in length
129147 129246: gap of 22102 bp in length
129147 157583: contig of 28337 bp in length
157584 157683: gap of 100 bp
183143 183142: contig of 25459 bp in length
183143 183142: gap of 100 bp
183243 189149: contig of 5907 bp in length
183143 183142: gap of 100 bp
                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52352 52451:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     248
                                                                                                                                          Ø
                                                                                                                                      vector_side:right"
1 45663 c 44537 g
                                                                                                                                                                                                                                                                                                                                                                                                           /note="assembly_fragment" 62175 . . . 70797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="assembly_fragment
clone_end:SP6
                                                                                                                                                                        clone_end:T7
                                                                                                                                                                                     /note="assembly_fragment
                                                                                                                                                                                                          /note="assembly_fragment"
183243. .189149
                                                                                                                                                                                                                                                                        /note="assembly_fragment"
129247. .157583
                                                                                                                                                                                                                                                                                                                                           /note-"assembly_fragment"
/note-"assembly_fragment"
/note-"assembly_fragment"
92735, .106944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="assembly_fragment"
21068. .24711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="assembly_fragment"
16636. .20967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    vector_side:left"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="17"
                                                                                                                                                                                                                                            /note-"assembly_fragment"
157684. .183142
                                                                                                                                                                                                                                                                                                           /note="assembly_fragment"
107045 . .129146
                                                                                                                                                                                                                                                                                                                                                                                                                                                 52452. .62074
                                                                                                                                                                                                                                                                                                                                                                                                                                                               /node="assembly_fragment"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="assembly_fragment"
24812...52351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="assembly_fragment"
13353. .16535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="RPCI-11 Human Male
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone="RP11-948G15"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16535: contig of 3183 l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ocation,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24811: gap of 100 bp

52351: contig of 27540 bp in length

52451: gap of 100 bp

52451: gap of 100 bp

62074: contig of 9623 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . .189149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21067:
                                                                     45.9<del>8</del>;
99.8<del>8</del>;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               635: gap of 10
20967: contig of 0
067: gap of 10
24711: contig of 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .13252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /Qualifiers
                                                   Score 1853.2;
Pred. No. 0;
0; Mismatches
                                                       0
                                                                                                                                      g 47593 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      bp in length
                                                                                      DВ
                                                   ω
--
                                                                                                                                          1303 others
                                                                                     2;
                                                   Indels
                                                                                     Length 189149;
                                                   0
                                                 Gaps
                   2234
                                                   0
```

```
Š
                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
밁
                                                                            Š
                                                                                                         밁
                                                                                                                                Ş
                                                                                                                                                            ₽
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Db 162250 AGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTC 162191
                                                                                                                                                                                                                                                                      161470
                                                                                                                                                              161350
                                                                                                                                                                                                                 161410
                                                                                                                                                                                                                                                                                                                          161530
                                                                                                                                                                                                                                                                                                                                                                                161590
                                                                                                                                                                                                                                                                                                                                                                                                                                     161650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           161710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     161830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           161890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              161950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   162010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            162130
                                                                                                                                                                                                                                           3015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2235 CTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCCTGTGTGTCCTCTCCC 3134
                                                                                                                                                                                                                                                                                  CTGCCTTCTCTTCTATCCTGCAATTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCA 3014
                                                                                                                                                                                                                                                                                                                       CCAGGTCCTTTCCTTCTCGTCTTCCTCTCTCTCACCTACTTCCTCCTCCTCCTCCTGTTC
                                                                                                                                                                                                                                                                                                                                                                              TAGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACCCCCAGAGTAGGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCATGGCCCAGCCTGGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACCTTCCGAGGGGACCAGGATGCTG
GGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTGATTTGGGGGGTGCAAT
                        GGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTGATTTGGGGGGTGCAAT
                                                 TIGIGICIGITGCTTATIGGGAGTAGGAGTIGCTCCTACCCCTGTCCTGGGGCTGGGTGT
                                                                                                                                                            TGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCCTGTGTGTCGTTCCC
                                                                                                                                                                                                               GCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCTCCTCCTCCAGCCCTA
                                                                                                                                                                                                                                           GCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCTCCTCCCAGCCCTA
                                                                                                                                                                                                                                                                   CTGCCTTCTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCA
                                                                                                                                                                                                                                                                                                                                                 CCAGTCCTGCAAGTCCATAGCTGAGCTGGAAAGGATGCTTCTGCTCACATTCCCTCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACCCCCAGAGTAGGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCCAGGCCTGGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGGGGACACTGAACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGGGGACACTGAACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGCCTGCGAGGTCAACCCCCTAGCTTGCCTGCCCCAGGCTGCTGCCTGTGCCCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGCCTGCGAGGTCAACCCCCTAGCTTGCCCTGCCCCAGGCTGCTGCCCCTGTGCCCCCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGGGGACCAGGATGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTG
                                                                                                                                 3194
                                                                                                                                                                                                                                           3074
                                                                                                                                                                                                                                                                                                                                                    2954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2474
161111
                        3314
                                                                            3254
                                                                                                                                                                                                               161351
                                                                                                                                                                                                                                                                   161411
                                                                                                                                                                                                                                                                                                                                                                                                         2894
                                                                                                                                                                                                                                                                                                                                                                                                                                                               2834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2294
                                                   161171
                                                                                                       161231
                                                                                                                                                            161291
                                                                                                                                                                                                                                                                                                                       161471
                                                                                                                                                                                                                                                                                                                                                                              161531
                                                                                                                                                                                                                                                                                                                                                                                                                                    161591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  161771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        161831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           161891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     162011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           162071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 162131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        161651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                161951
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                 AC055866/c
                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                 ORGANISM
                                                                                                AUTHORS
                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                160450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     160690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCAGCTAAAAAATAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCCACCCAGCCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGAATGAGCTGGGCCCT 3494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCCAAAGCCCCTACAACTCC 3434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGCAACAGCCTGTTTGGGA 3374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGGGAGGGGAACCAGTA 3914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATGGGGACAAAGAATAGCAAGAGATGAGAAACAACAGAAACTTTTTTCTCTAAAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAGAAACTTTTTTTCTCTAAAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTCCTGAGGTCTGGATTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCCACCCAGCCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGAATGAGCTGGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCCAAAAGCCCCTACAACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGCAACAGCCTGTTTGGGA 161051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGTTGAGGACAGGAGAGGGAAGGGTCTTAACACTTACACCCTTTTGTACATTTTGAATTT 3974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTTGAGGACAGGAGAGGGAAGGGTCTTAACACCTTACACCCTTTTGTACATTTTGAATTT 160451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTATAGCGCACTTCCCATTTGTGTTTCAGAAAGGAGTAGAATATAAACACATAATTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATGTCTTTATATACTAATATGTAATAATCTTCAGGTGAAAAAGGCAAGCCACAGAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGTCTTTATATACTAATATGTAATAATCTTCAGGTGAAAAAGGCAAGCCACAGAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGGGAGGGGAACCAGTA 160511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGTATAGCGCACTTCCCCATTTGTGTTTCAGAAAGGAGTAGAATATAAACACATAATTGCT
Birren,B., Linton,L., Nusbaum,C., Lander,E., Abraham,H., Allen,N., Anderson,S., Baldwin,J., Barna,N., Bastien,V., Beda,F., Boguslavkiy,L., Boukhgalter,B., Brown,A., Burkett,G., Campopiano,A., Castle,A., Choepel,Y., Colangelo,M., Collins,S., Collymore,A., Cooke,P., DeArellano,K., Dewar,K., Diaz,J.S., Dodge,S., Domino,M., Doyle,M., Ferreira,P., FitzHugh,W., Gage,D.,
                                                                                                                               Homo sapiens chromosome 17, clone RP11-376M2 Unpublished
                                                                                                                                                                     Mammalia; Eutheria; Pr. 1 (bases 1 to 194567)
Birren,B., Nusbaum,C.
                                                                                                                                                                                                                                                                                                                                          Homo sapiens chromosome
IN PROGRESS ***, 8 unord
                                                                                                                                                                                                                                                                                                       AC055866.14 GI:22123743
                                                                                                                                                                                                                                                                                                                                                                                   AC055866
                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                              (bases 1 to 194567)
                                                                                                                                                                                                                                                                                   HTGS_PHASE1; HTGS_FULLTOP; HTGS_ACTIVEFIN
                                                                                                                                                                                                                                                                                                                                              unordered
                                                                                                                                                                     and Lander, E.
                                                                                                                                                                                                                                                                                                                                                            194567 bp DNA 1
ne 17 clone RP11-376M2
                                                                                                                                                                                                                                                                                                                                          pieces.
                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                              map
                                                                                                                                                                                                                                                                                                                                                                17,
                                                                                                                                                                                                                              Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                *** SEQUENCING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             160991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     160631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              160691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 160811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          160871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   160931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160571
```

```
AL Submitted (18-ApR-2000) Whitehead Institute/MIT Center for Genome Research, 320 Charles Street, Cambridge, MA 02141, USA (25 1 (bases 1 to 194567) Charles Street, Cambridge, MA 02141, USA (25 1 (bases 1 to 194567) Charles Street, Ali, A., Allen, N., Anderson, S., Barran, B., Usabaum, C., Lander, E., Ali, A., Allen, N., Anderson, S., Barran, N., Bastien, V., Bloom, T., Boguslavkiy, L., Boukhgalter, B., Comera, A., Cooke, P., DeArellano, K., Dewar, K., Diaz, J.S., Dodge, S., Faro, S., Ferreira, P., FitzGerald, M., Gage, D., Galagan, J., Gardyna, S., Gord, S., Graham, L., Grand-Pledre, N., Hagos, B., Horton, L., Hulme, W., Iliev, I., Johnson, R., Jones, C., Kamat, A., Kells, C., Landers, T., Levine, R., Lindblad-Toh, K., Liu, G., MacLean, C., Macdonald, P., Major, J., Matthews, C., McCarthy, M., Meldrim, J., Meneus, L., Mihova, T., Menga, V., Murphy, T., Naylor, J., Nguyen, C., Nicol, R., Norbu, C., Norman, C.H., O'Connor, T., O'Donnell, P., O'Neil, D., Oliver, J., Peterson, K., Phunkhang, P., Pierre, N., Raymond, C., Retta, R., Rise, C., Rogov, P., Roman, J., Roy, A., Schauer, S., Schupback, R., Seaman, S., Severy, P., Smith, C., Spencer, B., Stange-Thomann, N., Stojanovic, N., Talamas, J., Tesfaye, S., Thoddore, J., Topham, K., Travers, M., Vassiliev, H., Zimmer, A. and Zody, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Galagan, J., Gardyna, S., Ginde, S., Goyette, M., Graham, L., Grand-Pierre, N., Grant, G., Hagos, B., Heaford, A., Horton, L., Howland, J.C., Iliev, I., Johnson, R., Jones, C., Kann, L., Karatas, A., Klein, J., LaRocque, K., Lamazares, R., Landers, T., Lehoczky, J., Levine, R., Lieu, C., Liu, G., Locke, K., Macdonald, P., Marquis, N., McCarthy, M., McEwan, P., McGurk, A., McKernan, K., McPheeters, R., Meldrim, J., Meneus, L., Mihova, T., Miranda, C., Mlenga, V., Morrow, J., Murphy, T., Naylor, J., Norman, C.H., O'Connor, T., O'Donnell, P., O'Neil, D., Olivar, T.M., Oliver, J., Peterson, K., Pierre, N., Pisani, C., Pollara, V., Raymond, C., Riley, R., Rogov, P., Rothman, D., Pisani, C., Pollara, V., Raymond, C., Riley, R., Rogov, P., Rothman, D., Roy, A., Santos, R., Schauer, S., Severy, P., Spencer, B., Stange-Thomann, N., Stojanovic, N., Subramanian, A., Trigilio, J., Vessiliev, H., Viel, R., Vo, A., Wilson, B., Wu, X., Wyman, D., Ye, W.J., Venna, G., Zainova, A., Santova, J., Tirrell, A., Travers, M., Trigilio, J., Ve, W.J., Ve, R., Ve, R., Ve, R., Ve, R., Wilson, B., Wu, X., Wyman, D., Ye, W.J., Ve, R., Ve, R., Ve, R., Ve, R., W.J., Wyman, D., Ye, W.J., Ve, R., Ve, R., Ve, R., Wilson, B., Wu, X., Wyman, D., Ye, W.J., Ve, R., Ve, R., Ve, R., Ve, R., Ve, R., Ve, R., W.J., Wyman, D., Ye, W.J., Ve, R., Ve, R., Ve, R., Ve, R., Ve, R., W.J., Wyman, D., Ye, W.J., Ve, R., Ve, R., Ve, R., Ve, R., W.J., Wyman, D., Ye, W.J., Ve, R., Ve, R., Ve, R., Ve, R., Ve, R., Wyman, P., Ye, W.J., Ve, R., Ve, R., Ve, R., Wyman, P., Ye, W.J., Ve, R., Ve, R., Ve, R., Wyman, P., Ye, W.J., Ve, R., Ve, R., Wyman, P., Ye, W.J., Wyman, P., Ye, W.
Submitted (06-AUG-2002) Whitehead Institute/MIT Center for Research, 320 Charles Street, Cambridge, MA 02141, USA On Aug 6, 2002 this sequence version replaced g1:21313813. All repeats were identified using RepeatMasker: Smit, A.F.A. & Green, P. (1996-1997) http://ftp.genome.washington.edu/RM/RepeatMasker.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Young, G., Zainoun, J., Zimmer, A. and Zody, M. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
```

REFERENCE JOURNAL

JOURNAL

COMMENT

Contact: sequence_submissions@genome.wi.mit.edu
------ project Information
Center project name: L9812
Center clone name: 376_M_2 Center: Whitehead Institute/ MIT Center for Genome Research Center code: WIBR Web site: http://www-seq.wi.mit.edu

NOTE: This is a 'working draft' sequence. It currently consists of 8 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence. as soon as it is available and the accession number will be preserved. 148493 148592: gap of 100 bp in 148593 157642: contig of 9050 bp in 157643 157742: gap of 100 bp in 157743 167387: contig of 9645 bp in 167388 167487: gap of 100 bp 1 11855: contig of 11855 bp in length 11856 11955: gap of 100 bp 11956 15736: contig of 3781 bp in length 15737 15836: gap of 100 bp 15837 31925: contig of 16089 bp in length 31926 32025: gap of 100 bp 32026 148492: contig of 116467 bp in length in length in length

```
Ş
                                              밁
                                                                Ş
                                                                                     В
                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
     ₽
                                                                                                        Ş
                                                                                                                              В
                                                                                                                                                                                                               В
                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                               Db 119577
                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db 119817 AGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTC 119758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
source
                                                                                                                                                   Ś
                                                                                                                                                                       В
                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 45.9
Best Local Similarity 99.8
Matches 1855; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                            119097
                                                                                                                           119217 TAGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACCCCAGAGTAGGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119757 CTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTG 119698
                                                                                      119157
                                                                                                                                                                                                                119337
                                                                                                                                                                                                                                                        119397
                                                                                                                                                                                                                                                                                                                                        119517
                                                                                                                                                                                                                                                                                                                                                                                                                        119637
2175 AGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTC 2234
                                                                                                                                                                                                                                                                                                                                                            2475
                                                                                                                                                                                            2715
                                                                                                                                                                                                                                                                                                         2235 CTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTG 2294
                                                                                                                                              2775 TAGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACCCCCAGAGTAGGGTTG 2834
                                                                                                                                                                                                                                                                                                                                                                                                     2415
                                                                                                                                                                                                                                                   GCCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGGGGACACTGAACCTTG 2654
                                      CCAGTCCTGCAAGTCCATAGCTGAGCTGGAAAGGATGCTTCTGCTCACATTCCCTCTCAT
                                                                                                                                                                   GGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGGGCACTGGGCCGCCA 2534
                                                                                                                                                                                                                                                                                                                                                                           GGGCCTGCGAGGTCAACCCCCTAGCTTGCCTGCCCCAGGCTGCTGCCTGTGCCCCCGACC 2414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51484 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     167488 185539: contig of 18052 bp in length
185540 185639: gap of 100 bp
185640 194567: contig of 8928 bp in length.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /Clone="RP11-376M2"
/Clone_lib="RPCI-11 Human
/clone_lib="RPCI-11 Human
45817 c 46626 g 49854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1. .194567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /map="17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 45.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1853.2;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          t
t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       w
``
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BAC"
786 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 194567;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Gaps
                                                                                                     2894
                                                                                 119098
                                          119038
                                                                                                                           119158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
```

032 17960	3975 TGAACCATGTGACTGTATTACCTATTCAAAATAAACAATAAATGGGCCCAAAAAAAA	Qy Db 11	
3974 118018	3915 GGTTGAGGACAGGAGGGGAAGGGTCTTAACACTTACACCCTTTTGTACATTTTGAATTT	Оу Db 11	
3914 118078	3855 TATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGGGAGGGGAACCAGTA 	ογ 11	
3854 118138	3795 TGTATAGCGCACTTCCCATTTGTGTTTCAGAAAGGAGTAGAATATAAACACATAATTGCT 	ОУ Db 11	
3794 118198	3735 TATGTCTTTATATACTAATATGTAATAATCTTCAGGTGAAAAAGGCAGGC	Qу Db 11	
3734 118258	3675 TGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCAGCTAAAAAATAATTG	Qy Db 11	
3674 118318	3615 GATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAGAAACTTTTTTCTCTAAAGGAC 	Qу Db 11	
3614 118378	3555 CCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTCCTGAGGTCTGGATTGGG	Qу рь 11	
3554 118438	3495 GGGTGAGGTGGGGGGTCTGGCCTAGTGGGAAGGGGCCTGGCCTGGGTGGG	ОУ Db 11	
3494 118498	3435 AGCCACCCAGCCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGAATGAGCTGGGCCCT	ОУ 11	
3434 118558	3375 GGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAAGCCCCTACAACTCC 	Оу Db 11	
3374 118618	3315 GATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGCAACAGCCTGTTTGGGA 	оу 11	
3314 118678	3255 GGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTGATTTGGGGGTGCAAT 	Qy Db 11	
3254 118738	3195 GTTTCAGGACAGCTGCTTCTGTGCGATTTGTGTCTGCCTGC	Qу рь 11	
3194 118798	3135 TIGIGICIGACTIATIGGGAGTAGGAGTIGCTCCTACCCCIGTCCTGGGGCTGGGTGT 	ОУ Db 11	
3134 118858	3075 TGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCCTGTGTGTG	ОУ 11	
3074 118918	3015 GCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCTCTCTC	Qу Db 11	

RESULT 9
AB050500S3
LOCUS

AB050500S3

đđ

DNA

linear

PRI 05-DEC-2000

100.0%;

Pred. No.

```
VERSION
KEYWORDS
SEGMENT
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                   exon
                                                                                                                                    exon
                                                                                             intron
                                                                                                                                                               Intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cds, exons 3
AB050502
AB050502.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            submitted (25-OCT-2000) Nobuyoshi Shimizu, Keio Univer of Medicine, Department of Molecular Biology; 35 Shina Shinjuku-ku, Tokyo 160, Japan (E-mail:shimizu@dmb.med. Tel:03-3351-2370, Fax:03-3351-2370)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shimizu, N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
BAC library o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              imamura,Y., Kudoh,J., Masn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              exons 3
                                        694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em array
) in 17q2
                                                                                                                                                                                                               /product="vascular adhesion protein-1"
/product="vascular adhesion protein-1"
/product="vascular adhesion protein-1"
/protein_id="BAB18866.1"
/db_xref="G1:11602473"
/db_xref="G1:11602473"
/translation="MMQKTILVLLILAVITIFALVCVLLVGRGGDGGEPSOLPHCPSV
/rranslation="MMQKTILVLLILAVITIFALVCVLLVGRAGARFSDMCVFSVELO
LPPKAAALAHLDRGSPPPAREALAIVFFGROPQPHVSELVVGPLPHSYMRDVTVERH
GGPLPVHRRPVLFQEXLDIDOMIFNRELPQASGLLHHCCFYKHCGHNLYMTTAFRGL
QSGDRATWFGLYVNISGAGFFLHHVGLELLVHKKALDPARMTIGKVFYGGRYVDSLAQ
LEAQFEAGLUNVVLIPDNGTGGSMSLKSPVPPGFAPPLQFYPGGPFSVQGSRVASSL
WTFSFGLGAFSGPRIFDVFFGGGSKLKSPVPPGGAPPLQFYPGGRFSVGSTRASSL
WTFSFGLGAFSGPRIFDVFFGGSSLLSSPVPPGFAPPLGFTQNGSLPLRHHSDLYSH
YFGGLAETVLVVRSMSTLLNYDYVMDFVFHSGAIEIRFYATGYISSAFLFGATGKYG
NQVSEHTLGTVHTHSAHFKVDLDVAGLENWVMAEDMVFVPMAVPMSPEHGLQFCLOVTR
KLLEMEEQAAFLVGSATPRILYLASNISNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
KLLEMEEQAAFLVGSATPRILYLASNISNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /cell_type="pre-pro-B cell"
/clone_llb="Keio BAC library"
/oin(AB50500.1:639. .2238,AB050501.1:581.
1387. .1662)
/gene="AOC3"
                                                                                                       /gene="AOC3"
556. .685
/gene="AOC3"
/number=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17q21
                                     686. .1386
/gene="AOC3"
1387. .3233
./number=4
a 844 c
                                                                                                                                                                                                                                                                                                                                                                                                                     /note="homolog of semicarbazide-sensitive
placental monoamine oxidase"
                                                                                                                                                                          CLPQAAACAPDLPAFSHGGFSHN*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="17"
                                                                                                                                                                                        LHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLA
                                                                                                                                                                                                   FSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGF
                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/product="vascular
                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="AOC3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         jóin(AB050500.1:639. .2238,AB050501.1:581.
1387. .1662)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="KB551F"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              s pre-pro-B cell cell_line:FLEB14-14 clone:KB551F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:11602472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AOC3
                                                                                                                                                                                                                                                                                                                                                                                                                                                _number="1.4.3.6"
 45
 .88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mashima,Y.,
                                        854
 Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 copper
                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           vascular adhesion protein-1,
1849;
                                        841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Oguchi,Y. and Shimizu,N. amine oxidase genes (AOC2
DB
 9
Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Keio University Sch
yy; 35 Shinanomachi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA,
 3233;
                                                                                                                                                                                                                                                                                                                                                                                                                                   amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Euteleostomi; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .866,556.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .866,556.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               clone_lib:Keio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   School
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .685,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                Ωy
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δõ
           Š
                                        밁
                                                                Š
                                                                                            밁
                                                                                                                    õ
                                                                                                                                                8
                                                                                                                                                                     δ
                                                                                                                                                                                                     밁
                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                   γ
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 100 Matches 1849; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1445
                                                                                                                                                                                                                                                                                                              2045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2175
                                                                                                                                                                                                                                 2955
                                                                                                                                                                                                                                                          2105
                                                                                                                                                                                                                                                                                                                                                                  1985
                                                                                                                                                                                                                                                                                                                                                                                            2775
                                                                                                                                                                                                                                                                                                                                                                                                                       1925
                                                                                                                                                                                                                                                                                                                                                                                                                                                2715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1565
             3195
                                        2345
                                                                                             2285
                                                                                                                                                 2225
                                                                                                                                                                          3015
```

```
CTGCCTTCTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                          TCCCTGCCTTCTCCCACGGGGCTTCTCTCACAACTAGGCGGTCCTGGGATGGGGCATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGGGGACCAGGATGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTC
                                                                                                                                                                                                                                                            CCAGGICCTITCCTICGGCTITCCTCTCTCTCTCACCTACTTCCTCCTCCTCCTCCTGTTC
                                                                                                                                                                                                                                                                                                CCAGTCCTGCAAGTCCATAGCTGAGCTGGAAAGGATGCTTCTGCTCACATTCCCTCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGGGGACACTGAACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGGGGAACTGGGCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTC
                                                                            TTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCATGGCCCAGCCTGGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCATGGCCCAGCCTGGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGGGCACTGGGCCGCCA
TIGIGICIGITATIGGGAGIAGGAGITGCICCIACCCCTGICCIGGGGCIGGGTGI
                                                                                                                                    GCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCTCCTCTCCAGCCCTA
                                                                                                                                               GCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCTCCCTCTCCAGCCCTA
                                                                                                                                                                                          CTGCCTTCTCTTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCA
                                                                                                                                                                                                                                               TAGGCCACCTCCAAGGACTCTAAAAGGGGGGCTATTCCCTGGAGACCCCCAGAGTAGGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGGGGACACTGAACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     red. No. 0;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1564
                                                                                                           3134
                                                                                                                                                             3074
                                                                                                                                                                                                                    3014
                                                                                                                                                                                                                                                                                                   2104
                                                                                                                                                                                                                                                                                                                             2894
                                                                                                                                                                                                                                                                                                                                                      2044
                                                                                                                                                                                                                                                                                                                                                                                 2834
                                                                                                                                                                                                                                                                                                                                                                                                             1984
                                                                                                                                                                                                                                                                                                                                                                                                                                      2774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2354
 3254
                            2404
                                                     3194
                                                                                2344
                                                                                                                                     2284
                                                                                                                                                                                           2224
                                                                                                                                                                                                                                               2164
                                                                                                                                                                                                                                                                         2954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1864
```

Institut,

```
REFERENCE
AUTHORS
                                                                                                                  VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                      RESULT 10
BTY15774
LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                        γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                     γQ
                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3375
                                                                                                                                                                                                                                                               3185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2405
                                                                                                                                                                                                                                                                                                                                         3915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2765
                                                                                                                                                                                                                                                           GGTTGAGGACAGGAGAGGGAAGGGTCTTAACACTTACACCCTTTTGTACACTTTTGAATTT 3974
                                                                                                                                                                                                                                                                                                                                                               TATGTATGCCTATTÇAGAATAAATGGGTAACACTGATTACTTTTGGGAGGGGAACCAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                 TATGTCTTTATATACTAATATGTAATAATCTTCAGGTGAAAAAGGCAAGACCACAGAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCAGCTAAAAAATAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATGGGGACAAAGAAATAGCAAGAAGATGAGAAACAACAGAAACTTTTTTCTCTAAAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTCCTGAGGTCTGGATTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCTGGAGTGGAAACAAAGGGTGGGCATCAAAAGATGAGAAGCCAAAAGCCCCTACAACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGGGAGGGGAACCAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCCACCCAGGCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGAATGAGCTGGGCCCT
                                                                                                                                                                                                                                                                                     TGAACCATGTGACTGTATTACCTATTCAAAATAAACAATAAATGGGCCC 4023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCCACCCAGCCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGAATGAGCTGGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAAGCCCCTACAACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTGATTTGGGGGTGCAAT 3314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BTY15774
Bos taurus r
Y15774
Y15774.1 G:
                                                                                                                  copper amir
cow.
Bos taurus
                                               Eukaryota; Metazoa; Chordata;
Mammalla; Eutheria; Cetartioda
Bovidae; Bosinae; Bos
1 (bases 1 to 2605)
1 (bases 1 to 2605)
                      Structure and tissue-specific
 amine oxidases . Biochem. 251
                                                                                                                                            amine
                                                                                                                                                        GI:2665357
                                                                                                                                                                                 mRNA for
                                                                                                                                           oxidase.
                                                                                     Chordata; Craniata; Vertebrata; Eute
Cetartiodactyla; Ruminantia; Pecora;
                                                                                                                                                                              2605 bp
copper amine
                                                   Borre, M.,
                         expression of
                                                                                                                                                                                 oxidase
                                                  Bundgaard, J.R.,
                                                                                                                                                                                             mRNA
                                                                                                                                                                                             linear
                         genes
                                                                                                                                                                                                                                                            3233
                        encoding
                                                  Larsson, L.I. and
                                                                                      Euteleostomi;
cora; Bovoidea;
                                                                                                                                                                                             MAM
                                                                                                                                                                                                                                                                                                                                                                                          3914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2464
                         bovine
                                                                                                                                                                                                                                                                                                                                                                3124
                                                                                                                                                                                                                                                                                                                                                                                                                   3064
                                                                                                                                                                                                                                                                                                                                                                                                                                           3854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
FEATURES
                                    밁
                                                       Ş
                                                                                     밁
                                                                                                            Qy
                                                                                                                                       В
                                                                                                                                                              δÃ
                                                                                                                                                                                          밁
                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                     BASE CO
          δÃ
                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 2065; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                   COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
             581
                                     369
                                                            521
                                                                                      309
                                                                                                                461
                                                                                                                                                                   401
                                                                                                                                                                                           189
                                                                                                                                                                                                                    341
                                                                                                                                                                                                                                              129
                                                                                                                                         24.9
                                                                                                                                                                                                                                                                       281
                                                                                                                                                                                                                                                                                                 69
                                                  TTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGGGAGCCCCCCACCT
                                                                                                                                       CCAGACCTGGTGGATGCAGCCCAGGCCCGACCCTCTGACAACTGCATCTTCTCGGTAGAG
                                                                                                                                                      TGCCCCTCCAGATCCCCTAGTGACCAGCCCTGGACACACCCTGACCAGAGCCAGCTGTTT
                                                                                                                                                                                                                                                            TGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACCCCTGGCCAGAGCCAGCTGTTT
                                                                                                                                                                                                                                                                                                             CTGGTGGTGGGGCCACTGCCTCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCAT
                                                                                      CTGCAGCTGCCCCCAAGGCTGCAGCCCTGGCCCACCTGGACAGGAGGAGCCCCCCCACCT
                                                                                                                                                                                                                                                                                                GCCCGGGAGGCACTGGCCATCGTCTTCTTTGGTGGACAACCCCAGCCCAATGTGACTGAG
98151264
9492300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (03-DEC-1997) J. Vuust, Artikkerives 5, DS-2300 Copenhage Related sequence: L27218.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vuust,J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases
                                                                                                                                                                                                                                                                                                                                                                                                                    543
                                                                                                                                                                                                                                                                                                                                                                                                          /Product-"copper amine oxidase"
//product-"copper amine oxidase"
//product-"copper amine oxidase"
//product-"copper amine oxidase"
//db_xref="gi:2665358"
//db_xref="gi:2665358"
//db_xref="gi:2665358"
//db_xref="gi:2665358"
//db_xref="sgi:2665358"
//db_xref="sgi:2665358"
//db_xref="sgi:2665358"
//translation="MFIFIFLSLWTLLVMGREEGGVGSEEGVGKQCHPSLPPRCPSRS
/FSDQPWTHDQSQLFADLSREELIAVMSFITDXKLGPLVDAAQARPSDNCIFSVELQL
PPKAALALHLDRRSPPPAREALAIVFFGGGPQPBVTELVVGPLPOSYMRDVYERHG
GPLPYYRHTVLLREYLDIDQMIFNRELFQAAGVLHHCCSYKQGGGNLVTMTTAPPGLQ
SGDRATWFGLYVIIPNIGTGGSWSLKSQVPPGGTPPLQFHPQGTRFSVQGSYVESLVQL
EEQFEAGRVNVVVIPNIGTGGWSLLAVELSQARVAIYGGNTPAAMLTRYMDACFGWKK
SGDRATWFGLYFTDIRFQGERLAYEISLQEAVAIYGGNTPAAMLTRYMDACFGWKK
FATPLTBRGVDCPYLATYVDMHFLLESQARKTLHDAFCVEDQNKGLPLRRHHSDFISOY
FGGVVETVLVFRSVSTLLNDYVTWDMVFHPNGAIEVKFHVTGYISSAFFFGTAQKYGN
QVRENTLGTVHTHSAHYKVDLDWGLENWWWASDMAFVPTTVPWSPEHQJORKSTERAI
SWGRYQLAVTQRRETEPSSSSVFNONDPWTPTVDFADFINNETIAGKDLVAWVTAGFL
HIPHAEDIPNYTYGGNGFETLAPVNFFDQEPSMDSADSIYFREGQDAGSCEINPLAC
LPQAATCAPDLPVFSHGGYPEY"
1508
143 a 760 c 734 g 568 t
                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tissue_type="lung"
/clone_lib="Clontech"
/dev_stage="adult"
12 .2300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene-
12. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="BOLAO"
/EC_number="1.4.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Bos taurus"
/db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sex="Female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                              44.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "BOLAO"
                                                                                                                                                                                                                                                                                                                                                              Score 1787.6;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Copenhagen,
                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Statens Serum
n, DENMARK
                                                                                                                                                                                                                                                                                                                                                  429;
                                                                                                                                                                                                                                                                                                                                                                          DB
                                                                                                                                                                                                                                                                                                                                                                           4.
```

Length

2605;

Gaps

۲.

128

460

308

368

400 188

₽

밁 δ

밁 õ

Ş

밁

PRI 02-APR-1998

õ 밁 밁 Š

1661 TTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCAC 1720 	01 CAGATGATCTTCAACGAGAGCTGCCCAGGCTTCTCCCAGGCTTCTCCCAGCTGCATCA 14 CAGATGATCTTCAACGAGAGCTGCCCAGGCTTCTGGCTTCTCCCACCACTGCTTCTCCTC 15 TACAAGCACCGGGAACCTGGTTGCCCCAGGCTTCTGGCTTCTCCCACCACTGCTTCTCCTC 16 TACAAGCACCGGGAACCTGGTTGCCCCAGGCTTCTGGCTTCTCCCACCACTGCTCTCCTC 17 GGGGACCGGGCACCTGGTTTGGCCTCTACTACAACATCTCGCCCCCGGTTCTCTCCATCACTC 18 CACCACGTGGCCACCTGGTTTGGCCTCTACTACAACATCTCCAGCCTTCCACTCCTCTC 19 CACCACGTGGGCTTCAACGCCTGGTTGGCCTCTACTACAACATCTCCAGCCTTCCTCCTC 10 CACCACGTGGGCTTCAACCTGGTTGGCCTCTACTACAACATCTCCAAGCCTTGCACCTGGACCT 11 CACCACGTGGGCTTCAACCCTGGTTTGGCCTCTACTACAACATCTCCAAGCCTTGACCCTGGACCT 11 CACCACGTGGGCTTCAACACCTGGTTGACCTCCAACACTCTCAAAGCCTGGCCACTGGAACCATGGACCT 11 CACCACGTGGGCTTCAACACCTGCTTCAACACTCTCAAACACCTGGCCCCCCCGCTGGAACCATGGACCT 12 CACCACGTGGGCTTCAACACCTGCTGAAACCACAAGCCTGGCCCAAGGCCCCCAACTGCAACCATGCACCAAGGTTGCCCCAACGTTGCAACCTTCCACCTTCAACCACCTTCCAACCATCCAACATTCCAACCATTCCAACCATTCCAACCATTCCAACCATCCAACATTCCAACCATTCCAACCATTCCAACCATCCAACATTCCAACCATTCCAACCATTCCAACCATTCCAACCATTCCAACCAACCAATGCAACCAAGCTTGCCCAACGATTCCAACTTCCAACCAA	429 CTGGTGGTGGGGCCGCTGCCCCAGCCCTCCTACATGCGGGATGTGACCGTGGAGCGTCAT 488
RESULT 11 AF054985 LOCUS AF054985 1794 bp mRNA linear PRI 02-APR-199	191 GCCGACGATACCANACANCETCANACATCHOCANCECCTCCANACANCTCCCTCCANACANCTCCCTCCANACANCTCCCTCC	

```
TITLE
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
   Š
                                  밁
                                                            δÃ
                                                                                            밁
                                                                                                                        Qy
                                                                                                                                                          밁
                                                                                                                                                                                   δō
                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
    2557
                                                                 2497
                                                                                                                                                                                                                                                                                                   2257 CGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTGACGAAGACCCCTCCTTCTACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                181
                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                      _
                                               GTGTGAGGGATGGGGAGCAGCTGGGCACTGGGCCAGCCTGGTTCCCTCTTTCCTGTG
                                                                                           CCAGGACTCTTTCTTCCACTACCCTCCCTCGCATCCGCCTCTGAGCCAGGAGCCTCCT
                                                                                                                      CTTCTCTCACAACTAGGCGGTCCTGGGATGGGGCATGTGGCCCAAGGGCTCCAGGGCCAGG
                                                                                                                                                                       AGCTTGCCTGCCCAGGCTGCTGCCTGTGCCCCCGACCTCCCTTGCCTTCTCCCCACGGGG
                                                                                                                                                                                                                      TGCCGACTCCATCTACTTCCGAGGGGACCAGGATGCTGGGGGCCTGCGAGGTCAACCCCCT
                                                                                                                                                                                                                                   TGCCGACTCCATCTACTTCCGAGGGGACCAGGATGCTGGGGCCTGCGAGGTCAACCCCCT
                                                                                                                                                                                                                                                                                 CGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTGACGAAGACCCCCTCCTTCTACTC
                                                                                                                                                       AGCTTGCCTGCCCAGGCTGCTGCCTGTGCCCCGACCTCCCTGCCTTCTCCCACGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens opartial cds. AF054985 AF054985.1 G:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97264341
9110174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (23-MAR-1998) Molecular and College of Medicine, One Baylor Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 (bases 1 to 1794)
Yu, W. and Gibbs, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Yu,W. Andersson,B., Worley,K.C., Muzny,D.M., Yu,W. Andersson,B., Worley,K.C., Muzny,D.M., Ricafrente,J.Y., Wentland,M.A., Lennon,G. and Large-scale concatenation cDNA sequencing Genome Res. 7 (4), 353-358 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Andersson, B., Wentland, M.A., Ricafrente, J.Y., Liu, W. and Gibbs, R.A. A 'double adaptor' method for improved shotgun library construction Anal. Biochem. 236 (1), 107-113 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8619474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mammalia; Eutheria; 1
1 (bases 1 to 1794)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                             397
                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submission
                                                                                                                                                                                                                                                                                                                                                                                                                             Ø
                                                                                                                                                                                                                                                                                                                                                                                                                  /product="placenta copper monamine oxidase"
/protetn_id="AAC09346.1"
/protetn_id="3005694"
/db_xref="GI:3005694"
/translation="GVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLP
QAAACAPDLPAFSHGGFSHN"
QAAACAPDLPAFSHGGFSHN"
455 g 460 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="similar to Homo sapiens placenta copper oxidase encoded by GenBank Accession Number U39 /codon_start=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE Consortium
/sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /dev_stage="infant"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="brain"
/clone_lib="1NIB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clone
                                                                                                                                                                                                                                                                                                                                                              44.0%;
99.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23577
                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                             Score 1779.2;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      placenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23577"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      copper monamine oxidase mRNA,
                                                                                                                                                                                                                                                                                                                                                                            DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 Human
1 S930,
                                                                                                                                                                                                                                                                                                                                             ω
••
                                                                                                                                                                                                                                                                                                                                                                            9;
                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genetics, Ba
                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ding,Y., Liu,W.,
Gibbs,R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Euteleostomi;
                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    U39447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77030, USA
                                                                                                                                                                                                                                                                                                                                             Gaps
 2616
                                                          2556
                                                                                                                        2496
                                                                                                                                                                                    2436
                                                                                                                                                                                                                                                  2376
                                                                                                                                                                                                                                                                                                              2316
                                                                                                                                                       180
                                                                                                                                                                                                                                                                                 60
                              300
                                                                                           240
                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                             0;
```

```
밁
                                                 δÃ
                                                                        밁
                                                                                           Qy
                                                                                                                 В
                                                                                                                                     Ş
                                                                                                                                                           Дb
                                                                                                                                                                              ş
                                                                                                                                                                                                     B
                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
           3637
                                 1321
                                                     3577
                                                                          1261
                                                                                               3517
                                                                                                                    1201
                                                                                                                                       3457
                                                                                                                                                           1141
                                                                                                                                                                                3397
                                                                                                                                                                                                     1081
                                                                                                                                                                                                                          3337
                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                  3277
                                                                                                                                                                                                                                                                                                            3217
                                                                                                                                                                                                                                                                                                                                                     3157
                                                                                                                                                                                                                                                                                                                                                                                             3097
                                                                                                                                                                                                                                                                                                                                                                                                                                     3037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2677
                                                                                                                                                                                                                                                                                        961
                                                                                                                                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                                                                                                                                                        841
                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                GTCCAATCACATTCAGGCATGCGAATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCT
                                                                                                                                                                                                   TCAGTTTTCAGTCAAGTTCCGTCTCCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGA
GAGATGAGAAACAACAGAAACTTTTTTTTCTCTAAAGGACTGGTTAAATCAATTCTGATACA
                                             TTCCCATCACTGCTGTCCCTCCTGAGGTCTGGATTGGGGATTGGGGACAAAGAAATAGCAA
                                                                                                                                                          GCATTTGTGTCTGCCTGCCTCATGCTCTCTATAGAGGAGGATGGTCATCGTGACAGCAGC
                                                                                                                                                                                                                                                                                                                                                                       GGTTCCCTTTGTTGCTGTCTGGCTTTCCCGAATCTTTTTAGGCCACCTCCAAGGACTCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCATCCACAGAGGCCAGGCATGGCCCAGGCCTGGAGGCCGTAGGGCCGAGGGCTTCCCCTAGAT 2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCTCAAGTTAGCATTTCAAGTGATTTTGGGGGTGCAATGATAATGAAAAATGGCCATTTT 3336
                                                                                                                                                                                                                                                                                                                               GTAGGAGTTGCTCCTACCCCTGTCCTGGGGCTGGGTGTTTTCAGGACAGCTGCTTCTGT
                                                                                                                                                                                                                                                                                                                                           GTAGGAGTTGCTCCTACCCCTGTCCTGGGGCTGGGTGTGTTTCAGGACAGCTGCTTCTGT
                                                                                                                                                                                                                                                                                                                                                                                    ATTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAAGGGGGCTATTCCCTGGAGACCCCAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAGGGGGCTATTCCCTGGAGACCCCAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTTCCCTTTGTTGCTGTCTGGCTTTCCCGAATCTTTTTAGGCCACCTCCAAGGACTCTA 2796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACCCTGTGATGCCTGACACAGGGGACACTGAACCTTGTTGATGCCAGCTGTACTGAGTT
                                TTCCCATCACTGCTGTCCCTCCTGAGGTCTGGATTGGGGGATGGGGACAAAGAAATAGCAA
                                                                                     AGTGGGGAGGGGCCTGGCCTGGGTGGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCA
                                                                                                                                                                                                                                              AGCTCAAGTTAGCATTTCAAGTGATTTGGGGGGTGCAATGATAATGAAGAATGGCCATTTT
                                                                                                                                                                                                                                                                                       GCATTTGTGTCTGCCTGCCTCATGCTCTATAGAGGAGGATGGTCATCGTGACAGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCTCTCTCTCACCTACTTCCTCCTCCTCCTCCTGCTTCCTGCCTTCTTCTATCCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGCTGGAAAGGATGCTTCTGCTCACATTCCCTCTCATCCAGGTCCTTTCCTTCTCGTCT
                                                                                                                                                                               3456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                      3516
                                                                                                                                                           1200
                                                                                                                                                                                                                                                                                       1020
                                                                                                                                                                                                                                                                                                           3276
                                                                                                                                                                                                                                                                                                                                                   3216
                                                                                                                                                                                                                                                                                                                                                                                                                                     3096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2676
                                                                                                                                                                                                                                             1080
                                                                                                                                                                                                                                                                                                                                960
                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
```

```
DEFINITION
ACCESSION
VERSION
KEYWORDS
SEGMENT
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ϋ́
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 12
AB050500S1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                              JOURNAL REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           р
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1741
                                                                      gene
                                                exon
                                                                                             misc_feature
                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TAATAATCTTCAGGTGAAAAAGGCAAGCCACAGAAATGTGTATAGCGCACTTCCCATTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCTTACAATACAATAGTATGCAGCTAAAAAATAATTGTATGTCTTTATATACTAATATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGGGTAACACTGATTACTTTTGGĞAGGGAACCAGTAGGTTGAGGACAGGAGGAGGGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTCTTAACACTTACACCCTTTTGTACATTTTGAATTTTGAACCATGTGACCGTATTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGATGAGAAACAACAGAAACTTTTTTCTCTAAAGGACTGGTTAAATCAATTCTGATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTCTTAACACTTACACCCTTTTGTACATTTTGAATTTTGAACCATGTGACTGTATTACC
                                                                                                                                                                                                                                                  Direct Submission
Submitted (25-OCT-2000) Nobuyoshi Shimizu, Keio University School
of Medicine, Department of Molecular Biology; 35 Shinanomachi,
Shinjuku-ku, Tokyo 160, Japan (E-mail:shimizu@dmb.med.keio.ac.jp,
Tel:03-3351-2370, Fax:03-3351-2370)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens AOC3 gene
AB050500
AB050500.1 GI:11602470
                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; I
Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens pre-pro-B cell_line:FLEB14-14 BAC library clone:KB551F9.
                                                                                                                                                                                                                                                                                                                 Shimizu, N.
                                                                                                                                                                                                                                                                                                                                     Unpublished
                                                                                                                                                                                                                                                                                                                                                 Tandem array of two AOC3) in 17q21
                                                                                                                                                                                                                                                                                                                                                           1
Imamura,Y., Kudoh,J., Masn
                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                            of
                                                                                                                                                                                                                                                                                                                           (bases 1 to
                                                                                                                  /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="17"
/map="1792!"
/clone="KB551F9"
/cell_tine="FLEB14-14"
/cell_type="pre-pro-B cell
/clone_lib="Keio BAC libra
432. 437
                                                /gene="
479...2
                                                                                             /note-"Sp-1 site"
453. .458
/product="vascular adhesion protein-1"
/note="CDS is reported in Acc#:AB050502.
homolog of semicarbazide-sensitive amine
                                                                                                                                                                                                                                          Location/Qualifiers
                                    /gene="AOC3"
                                                                                                                                                                                                                                                                                                                            2614)
                                                                                   'Sp-1 site'
                                                                                                                                                                                                                                                                                                                                                                          Mashima,Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2614 bp I
for vascular
                                                                                                                                 BAC library"
                                                                                                                                                                                                                                                                                                                                                              hima,Y., Oguchi,Y. and copper amine oxidase
                                                                                                                                              cell"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         adhesion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      inear PRI of protein-1,
                                                                                                                                                                                                                                                                                                                                                               genes
                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA,
                                                                                                                                                                                                                                                                                                                                                               Shimizu, N.
genes (AOC2
 oxidase
                                                                                                                                                                                                                                                                                                                                                                                                             Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                clone_lib:Keio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          05-DEC-2000
exon 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                        20
                                                                                                                                                                     밁
                                                                                                                                                                                         Š
                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                ρ
                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                           QΥ
                                                                                                                    문
Š
                        В
                                          QΥ
                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 43.6%;
Best Local Similarity 100.0%;
Matches 1761; Conservative
                                                                                                                                                                                                                                                                   1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   intron
                                                                                                                      1199
                                                                                                                                                                      1139
                                                                                                                                                                                                                    1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     479
                                                                                                                                                                                                                                                                                                                  959
                                                                                                                                                                                                                                                                                                                                                                899
                                                                                                                                                                                                                                                                                                                                                                                                              839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                              781
                                                                                                                                            721
                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCCTTCCCACCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGGGGTGGAGATGGGGGTGAACCCAGCCAGCCTCCCCATTGCCCCTCTGTATCTCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCCCACCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGGGGAGAATACATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTGCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGCTGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT
                                                                                                                                                                                                                                                                                                                              TGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCTGCCCGGGAGGCACTGGCCAT
                                                                                                                                                                                                                                                                                                                                                                CCAGGCCCGGCCCTCGGACAACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCCCCCACCCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG
                       GCTGCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAA
                                                                                                                                                                   TCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCA
                                                                                                                                                                                                                                                                   TGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCCACCTGCCCGGGAGGCACTGGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                              GCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                           GCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGGCCAGGGCTGGTGGATGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTCTCCTGCTGGTGGG
                                                                                                                                                                                                                    TCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCA
 GCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         placental monoamine oxidase"
/number=1
/EC_number="1.4.3.6"
/EC_number="1.4.3.6"
2239. >2614
/gene="AOC3"
757 c 732 g 609 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1761;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
```

360

958 480 898 420 300

240 658

840 1258

960

1198 720

780

660 1078 600 1018 540

Length 0

Gaps

0

538 60

598 120

```
SOURCE
ORGANISM
                                                               VERSION
KEYWORDS
                                                                                    DEFINITION
ACCESSION
                                                                                                                 RESULT
BOVFRA
                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                 ρy
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                           οy
                                                                                                                                                                                            밁
                                                                                                                                                          В
    REFERENCE
                                                                                                                                                                                                                                                                                                                          1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1379
                                                                                                                                                          2219
                                                                                                                                                                             1741
                                                                                                                                                                                                                                                               1621
                                                                                                                                                                                                                                                                                 2039
                                                                                                                                                                                                                                                                                                                                              1501
                                                                                                                                                                                                                                                                                                                                                                  1919
                                                                                                                                                                                                                                                                                                                                                                                    1441
                                                                                                                                                                                                                                                                                                                                                                                                         1859
                                                                                                                                                                                                                                                                                                                                                                                                                            1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1021
                                                                                                                                                                  GGTGGATCTGGATGTAGCAGG
                                                                                                                                                                                                          CGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCACAGCGCGCCACTTCAA
                                                                                                                                                                                                                                     ACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTA
                                                                                                                                                                                                                                                                              CTACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCAC
                                                                                                                                                                                                                                                                                                                                                                          TGCCTTTTGTGTGTGTTTGAACAGAACCAGGGCCTCCCCCCTGCGGGGGACACCACTCAGATCT
                                                                                                                                                                                                                                                                                                                                                                                                     GGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                            AGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGGATCTTTGACGTTCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTTGGCCTCGGAGCAFTCAGTGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGGGTCCAGCTCCCCCCTCTACAGTTCTATCCCCAAGGCCCCCCGCTTCAGTGTCCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCACAGCGCCCACTTCAA
                                                                                                                                                                                                                                                                                                                                                              TGCCTTTTGTGTGTTTGAACAGAACCAGGGCCTCCCCCTGCGGCGACACCACTCAGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCCAAGGCCCCCGCTTCAGTGTCCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTGGATCTGGATGTAGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGGATCTTTGACGTTCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCC
BOVFRA
BOS TAURUS SETUM AMINE OXÍGASE MRNA, COMPLETE CdS.
L27218
L27218.1 GI:520784
anine oxídase.
Bos taurus female liver, bovine cDNA to mRNA.
Bos taurus
Bos taurus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutel.
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora;
Bovidae; Bovidae; Bos.
1 (bases 1 to 2664)
                                                                                                                                                         2239
                                                                                                                                                                            1761
                                                                                                      03-AUG-1994
                              leostomi;
                                                                                                                                                                                                                                                                                                                                                                                                       1918
                                                                                                                                                                                                                                                                                                                                                                                                                          1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1438
                                                                                                                                                                                                                                                                                                    1620
                                                                                                                                                                                                                                                                                                                       2038
                                                                                                                                                                                                                                                                                                                                          1560
                                                                                                                                                                                                                                                                                                                                                                1978
                                                                                                                                                                                                                                                                                                                                                                                  1500
                                                                                                                                                                                                                                                                                                                                                                                                                                               1858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1558
```

```
QΥ
                                                                                                                                                 Ş,
                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                         γQ
                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
   밁
                       δ
                                                            밁
                                                                                                                         В
                                                                                                                                                                                    В
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 81.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                         478
                                                                                                                                                                                      418
                                                                                                                                                                                                                                                                                                                                                                                                                                    178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             118
                                                              538
                                                                                                                                                      581
                                                                                                                                                                                                                 521
                                                                                                                                                                                                                                                 358
                                                                                                                                                                                                                                                                             461
                                                                                                                                                                                                                                                                                                            298
                                                                                                                                                                                                                                                                                                                                          401
                                                                                                                                                                                                                                                                                                                                                                                                    341
                                                                                                                                                                                                                                                                                                                                                                                                                                                               281
                               701
                                                                                                                       CTGGTGGTGGGGCCACTGCCTCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCAT
                                                                                                                                                                                                                                                                                                       CCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTCGGACAACTGTGTCTCTCAGTGGAG
                                                                                                                                                                                                                                                                                                                                                                  CAGATGATCTTCAACAGAGAGCTGCCCCAGGCTTCTGGGCTTCTCCACCACCACTGTTGCTTC
                                                                              GGAGGCCCCCTGCCCTATCACCGACGCCCCCTGCTGTTCCAAGAGTACCTGGACATAGAC
                                                                                                                                                                                                  TIGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGGGAGCCCCCCCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                               TGCCCTCCAGATCCCCTAGTGACCAGCCCTGGACACCCCTGACCAGAGCCAGCTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACCCCTGGCCAGAGCCAGCTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCGGGAGGCACTGGCCATCGTCTTCTTTGGCGGACAACCCCAGCCCAATGTGACTGAG
                                                                                                                                                                                                                                               CTTCAGCTGCCCCCAAGGCTGCAGCCCTGGCCCACCTGGACAGGGGGAGCCCCCCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Amine
J. Bio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mu,D., Medzihradszky,K.F., Adams,G.W., Mayer,P., Hines,W.M., Burlingame,A.L., Smith,A.J., Cai,D. and Klinman,J.P. Primary Structures for Mammalian Intracellular and Serum Copamine Oxidases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation-"MFIFIFLSLWTLLVMGREEGGVGSEEGVGKQCHPSLPPRCPSRS
PSDQPWTHPDOSQLFADLSREELTVMSFLTQOLGPDLVDAAQARPSDNCVFSVELQL
PPKAAALAHLDRGSPPPARBALAIVFFGGOPQPWTELVVGPLPQPSYMRDVTVERHG
GPLPYYRRPVLLREYLDIDOMIENRELPQAAGVLHCCSYKQGGQKLLTMNSAPRGVQ
SGDRSTWFGIYYNITKGGPYLHPVGLELLVDHKALDPADWTVQKVFFQGRYVENLAQL
EEQFEAGQVNVVVIPDDGTGGFWSLKSQVPGPPLQFHPQGPRFSVGRVASSLW
TFSFGLGAFSCPRVFDVRFQGREHLAYELSLQEAGAVYGGNTPAAHLTRYMDSGFGWGY
FATPLIRGVDCPYLATYMDWHFVVESQTPKTLHDAFCVFEQNKGLPLRRHHSDFLSHY
FGGVAQTVLVFRSVSTMLNYDYVWDMVFYPNGALEVKLHARGYISSAFLFGAARRYGN
QVGEHTLGPVHTHSAHKYNDLDVGGLEMWAVWAEDMAFVPTAIPWSFEHQJORDLQVTRK
QLETEEQAAFPLGGASPRYLYLASKQSNKWGHPRGYRIQTVSFAGGPMPQNSPMERAF
SWGRYQLAITQRKETEPSSSSVENQNDPWTFVDFSDFINNETIAGKDLVAWVTAGFL
HIPHAEDIPNTVTVGNGVGFFFLRPYNFFDQEPSMDSADSIYFREGQDAGSCEINPLAC
LPQAATCAPDLDVFSHGGYPEY"
49 a 781 c 751 g 583 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chem. (1994) In
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="serum amine oxidase"
/protein_id="AAA30525.1"
/db_xref="GI:520785"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /tissue_type="liver, bovine"
61. .2349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Bos taurus"
/db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1754; DB 4;
Pred. No. 0;
0; Mismatches 450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                              760
                                                            597
                                                                                         700
                                                                                                                                                    640
                                                                                                                                                                                    477
                                                                                                                                                                                                                 580
                                                                                                                                                                                                                                              417
                                                                                                                                                                                                                                                                            520
                                                                                                                                                                                                                                                                                                         357
                                                                                                                                                                                                                                                                                                                                       460
                                                                                                                                                                                                                                                                                                                                                                    297
                                                                                                                                                                                                                                                                                                                                                                                                  400
                                                                                                                                                                                                                                                                                                                                                                                                                                237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             177
```

۲,

1900	AGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGA	æ	Qy
.73	GCTGAGGATATGGCCTTTTGTCCCCACGGCGATACCCTGGAGCCCTGAGCACCAGATACAG	7	망
1840	CCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTG	7	γo
7	ACCCACAGTGCCCCACTACAAGGTGGATCTGGACGTGGGAGGACTGGAAAACTGGGTCTGG	1618	당 5
7	いっていった そうにうしてつ ようじゅうしゅ ていって とうじゅうじゅく しんしょう アンコンション ひょうしょうしゅう とうしゅう とうしゅう とうしゅう とうしゅう とうしゅう とうしゅう とうしゅう とうしゅう とうしゅう しょうしゅう しょうしゅう しょうしゅう しゅうしゅう しゅうしゅん しゅん しゅん しゅん しゅん しゅん しゅん しゅん しゅん しゅん 	72	Ş
1720 1617	TTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCAC	1661	B 6
1557	CCCAATGGGGCCATAGAAGTCAAATTGCCACGGGCTACATCAGCTCAGCGTTCCTC	4	В
1660	CCAGTGGGGCCATAGAAATACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCT	1601	οy
4		43	망 :
σ	CGTCAGATCTATGTCCACCTTGCTCAACTATGACTATGTGTGGGGATACGGTCTTCC	σ.	o O
1540 1437	CGGCGACACCACTCAGATCTCTACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTG	1481 1378	Qy Db
1377	CCCCAAGACACTACATGATGCCTTTTGTGTTTTGAGCAGAACAAGGGCCTGCCCC	w	В
1480	ACGTGATGCCTTTTGTGTGTTTGAACAGAACCAGGGCCTCCCC	1421	Qy
w	유=	25	밁
4	GGGTGGACTGCCCCTACTTGGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCC	36	Q
2		19	DЬ
1360	CCGCTATGTGGATGGAGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCG	w	Ωy
1197	TATGAGATCAGCCTGCAAGAGGCTGGTGCTACGGTGGGAATACTCCCAGCAGCAATG TATGAGATCAGCCTGCAAGAGGCTGGTGTCTACGGTGGGAATACTCCAGCAGCAATG	1138	B 5
, ,	1.00000c111c001001cc10000001c11100c011c00011c000000		2
- 2	CTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGTTCGCTTCCAAGGAGAAAGACTAGTT	18	} Q
1077	CCGCTTCAGTGTCCAGGGCAATCGAGTGGCCTCCTCATTGTGGACTTTCTCCTTTGG	1018	망
1180	- 13		Qy
1017	TCCCTGAAGTCCCAGGTGCCTCCGGGTCCAACTCCCCCTCTGCAGTTCCATCCTCAGGGC	958	타
1120	CCCTGAAGTCCCCTGTGCCCCCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGG	1061	Qy
957	TITGAGGCTGGCCAGGTGAATGTGGTGGTGGTGATCCCAGACGATGCCACACGTGGGTTCTGG	898	뮹
1060	TTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGG		Qy
897	GTCCAGAAGGTGTTCTTCAAGGCCGCTACTATGAAAATCTGGCCCAGCTGGAGGAGCAG	838	Дb
1000	TCCAGAAGGTGTTCTATCAAGGCCGCTACTACGACAGCCTGGCCCAGCTGGAGGCCCAG		Ωy
837	 ATTGGACC	778	В
940	ACCACGTGGGCTTGGAGCTGCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACT	881	Qy
880 777	GGGGACCGGGCCACCTGGTTTGGCCTCTACTACAACATCTCGGGCGCTGGGTTCCTTCC	821 718	B 8
717	ACAAACAAGGAGGACAGAAACTGTTGACCATGAACTCAGCTCCCCGTGGAGTGCAGTCA		В
2	GGGGACGGAACCTGGTGACAATGACCACGGCTCCCCGTGGTCTCCAATCA	6	Qy

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                    õ
                                                                                             ₽
                                                                                                                  Š
                                                                                                                                             멍
                                                                                                                                                                   δÃ
                                                                                                                                                                                              밁
                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                     Ş
                                               ₽
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1738
                                                                                                                                                                                                                                                                                                                                             2158
                                                                                                                                                                                                                                                                                                                                                                                             2098
                                                                                                                                                                                                                                                                                                                                                                                                                      2201
                                                                                                                                                                                                                                                                                                                                                                                                                                              2038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2021
                                                                                                                                                                                                2338
                                                                                                                                                                                                                                                                                                2218
                                                                                                                                                                                                                                                                                                                                                                      2261
                                                                                               2448
                                                                                                                                                                                                                                                2278
                                                                                                                                                                                                                                                                        2381
 2568
                                                                                                                                               2398 GTGGAGAGGGGAGGGGCTGGGCACTGAG-----TTTCTCCCAGCTCCCACCCCAG
                        2681 TCCACAGAGGCCAGGCATGGCCCAGCCTGGAGCCGTGGCCGAGG 2724
                                                 2508
                                                                                                                                                                                                                                                                                                                                                          GTGGGCTTCTTCCTCCGACCCTATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTTTTCTGCATATCCCACATGCAGAGGACATTCCTAACACAGTGACTGTGGGGAACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCCCAGCAGCTCCAGCGTCTTCAATCAGAATGACCCCTGGACTCCCACCGTGGACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAACAACAACAAGTGGGGTCACCCC 1960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGGCTGCAGGTGACCCGGAAGCACCTGGAGACCGAGGAGCAGGCTGCCTTCCCCCTGGGA
                                                                                                                                                                                                                                              TCTGACTTCATCAACAATGAGACCATTGCTGGAAAAGGACTTGGTGGCCTGGGTGACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGCCCAGTAGCAGCAGCGTTTTCAATCAGAATGACCCTTGGGCCCCCACTGTGGATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCGGCTATCCCAGACCGTCAGCTTTGCTGGGGGGCCGATGCCCCAGAACAGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGGCTTCCCCTCGCTACCTGTACCTGGCCAGCAAGCAGCAACAAGTGGGGGCACCCT
                                                             CTGTGATGCCTGACACAGGGGACACTGAACCTTGTTGATGCCAGCTGTACTGAGTTCTCA
                                                                                                             GAGGGATGGGGAGCAGCTGGGCAGCCGGCAGCCTGGTTCCCTTTCCTGTGCCAG
                                                                                                                                                                                               CCTGAGTACTAGGTGGTCCTTGGGGGGGGGGGATGTGTCTAGGACCCAAAGACAAGGGAGT
                                                                                                                                                                                                            TCTCACAACTAGGCGGTCCTGGGATGGGGCCATGTGGCCAAGGGCTCCAGGGCCAGGGTGT
                                                                                                                                                                                                                                                                                                                                              GTGGGCTTCTTCTTGAGACCCTACAACTTCTTTGACCAGGAGCCCTCCATGGATTCTGCT
                                                                                                                                                                                                                                                                                                                                                                                             GGTTTCCTGCACATCCCACATGCAGAGGATATTCCCCAACACGGTGACGGTGGGGAACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTGACTTCATCAACAATGAGACCATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCT
TCGCAGAGAGAAAAGGAATGGCCAACTGGGAGTCTAGAATGATG
                                                CTGTGCTGCCTGACCCATGGGCTTCTCAACTCTGTTGACTCCTGACCTGCTGCATTCCTA
                                                                                               GTTCCTCCCTCTCCCATCTTCTGCCCTTGCCTCCAACCCTGCTGGAAGTATCCATAGC
 2611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1917
                                                                        2680
                                                                                                                                                                                                                                                                        2440
                                                                                                                                                                                                                                                                                                                       2380
                                                                                                                                                                                                                                                                                                                                                                      2320
                                                                                                                                                                                                                                                                                                                                                                                               2157
                                                                                                                                                                                                                                                                                                                                                                                                                      2260
                                                                                                                                                                                                                                                                                                                                                                                                                                              2097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2020
                                                                                                 2507
                                                                                                                        2620
                                                                                                                                                2447
                                                                                                                                                                        2560
                                                                                                                                                                                                2397
                                                                                                                                                                                                                         2500
                                                                                                                                                                                                                                                2337
                                                                                                                                                                                                                                                                                                2277
                                                                                                                                                                                                                                                                                                                                              2217
```

```
KEYWORDS
SOURCE
ORGANISM
                                                                                               ACCESSION
VERSION
                                                                                                                                                                            RESULT
S69583
                                                                                                                                                             LOCUS
                                                                                                                                              DEFINITION
Bos taurus liver.
Bos taurus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoldea
Bovidae; Bovinae; Bos.
                                                                                            S69583 2664 bp mRN7 copper maine oxidase-amiloride-binding liver, mRNA, 2664 nt]. S69583 S69583.1 GI:546215
                                                                                                                                                             mRNA
                                                                                                                                              protein homolog
                                                                                                                                                              linear
                                                                                                                                                             MAM
                                                                                                                                              M 23-SEP-1994 (cattle,
                    Bovoidea
```

```
밁
                                                                                                                     δÃ
                                                                                                                                                                               B
                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                            Š
                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Sim
Matches 2044;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                        238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         118
                                                                                                                                                                                                                                     461
                                                                                                                                                                                                                                                                                                                                      401
                                                                                                                                                                                                                                                                                                                                                                                                                                       341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                  CTGGTGGTGGGGCCACTGCCTCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCAT
                                                                   CCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTCGGACAACTGTGTCTCTCAGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGACCTGGTGGATGCAGCCCAGGCCCGACCCTCAGACAACTGTGTCTTCTCGGTAGAA
                                                                                                                                                                                                                                                                                                                                                                             GCAGACCTGAGCCGAGAAGAGCTGACAACTGTGATGAGCTTCCTGACTCAGCAGCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                        GCAGACCTGAGCCGAGAGGAGCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGCCCCTCTGTATCTCCCAGTGCCCAGGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCCCCTCCAGATCCCCTAGTGACCAGCCCTGGACACACCCTGACCAGAGCCAGCTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 2664)
Mu,D., Medzihradszky,K.F., Adams,G.W., Mayer,P., Hines,W.M.,
Burlingame,A.L., Smith,A.J., Cai,D. and Klinman,J.P.
Primary structures for a mammalian cellular and serum copper oxidase
J. Biol. Chem. 269 (13), 9926-9932 (1994)
94193686
8144587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenBank staff at the National Library of Medicine entry (NCBI gibbsq 146050) from the original journ This sequence comes from Fig. 3.

Location/Qualifiers
549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //note="amiloride-binding protein homolog; precursor;
Method: conceptual translation with partial peptide
sequencing; This sequence comes from fig. 3; BSAO"
/codon_start=1
/product="copper amine oxidase"
/product="copper a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="copper amine oxidase, BSAO"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Bos taurus"
/db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               43.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "copper amine oxidase, BSAO"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1754; DB 4;
Pred. No. 0;
0; Mismatches 450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 2664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           icine created
journal artic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              eated this article.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                              460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 177
                                                                                                                        580
                                                                                                                                                                            417
                                                                                                                                                                                                                           520
                                                                                                                                                                                                                                                                             357
                                                                                                                                                                                                                                                                                                                                                                                                                                  400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                340
                                                                                                                                                                                                                                                                                                                                                                                297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1;
```

```
ő
                                         밁
                                                            δÃ
                                                                                 밁
                                                                                                  Š
                                                                                                                        밁
                                                                                                                                          Š
                                                                                                                                                                밁
                                                                                                                                                                                 ş
                                                                                                                                                                                                       g
                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                        γQ
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
  1558
                                          1498
                                                                                 1438
                                                                                                                                                                                    1421
                                                                                                                                                                                                                                                                    1301
                                                                                                                                                                                                                                                                                        1138
                     1661
                                                              1601
                                                                                                    1541
                                                                                                                         1378
                                                                                                                                             1481
                                                                                                                                                                1318
                                                                                                                                                                                                         1258
                                                                                                                                                                                                                           1361
                                                                                                                                                                                                                                                1198
                                                                                                                                                                                                                                                                                                           1241
                                                                                                                                                                                                                                                                                                                               1078
                                                                                                                                                                                                                                                                                                                                                  1181
                                                                                                                                                                                                                                                                                                                                                                      1018
                                                                                                                                                                                                                                                                                                                                                                                        1121
                                                                                                                                                                                                                                                                                                                                                                                                                                1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1001
                                                                                                                                                                                                                                                                                                                                                                                                             958
                                                                                                                                                                                                                                                                                                                                                                                                                                                   898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   761
                                                                               TTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCAC
                                      CGGCGACACCACTCAGATCTCTACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTG
                                                                                                                                                                         GCCCCCAAGACAATACGTGATGCCTTTTGTGTGTTTTGAACAGAACCAGGGCCTCCCCCTG
                                                                                                                                                                                                                 GGGGTGGACTGCCCCTACTTGGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAG
                                                                                                                                                                                                                                                          ACGACCGCTATGTGGATGGAGGCTTTGGCATGGCAAGTACACCACGCCCCTGACCCGT
                                                                                                                                                                                                                                                                                     TATGAGATCAGCCTGCAAGAGGCTGGTGCTGTCTACGGTGGGAATACTCCAGCAGCAATG
                                                                                                                                                                                                                                                                                               TATGAGATAAGCCTCCAAGAGGCCTTGGCCATCTATGGTGGAAATTCCCCAGCAGCAGTG
                                                                                                                                                                                                                                                                                                                            TCCCTGAAGTCCCCTGTGCCCCCGGGTCCAGCTCCCCCCTCTACAGTTCTATCCCCCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGATGATCTTCAACAGAGAGCTGCCCCAGGCTTCTGGGCTTCTCCCACCACTGTTGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCTGCTTCCAAGAGTACCTGGACATAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGGTAGTGGGGCCGCTGCCCAGCCCTCCTACATGCGGGATGTGACCGTGGAGCGTCAT
                                                                                                                                                               ACCCCCAAGACACTACATGATGCCTTTTGTGTGTTTGAGCAGAACAAGGGCCTGCCCCTG
                                                                                                                                                                                                      GGCGTAGACTGCCCTTACCTGGCCACCTACATGGACTGGCACTTCGTTGTGGAGTCCCAA
                                                                                                                                                                                                                                              CTCACTCGCTATATGGATAGTGGCTTTGGCATGGGTTACTTCGCCACACCCCTGATTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACCACGTGGGCTTGGAGCTGCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGGACCGGCCCTGGTTTGGCCTCTACTACAACATCTCGGGCGCGCTGGGTTCTTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TACAAGCACCGGGGACGGAACCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCGGCCCCTGCCCTATTACCGACGCCCCGTGCTTCTCCGAGAGTACCTGGACATAGAC
                                                                                                                                                                                                                                                                                                                                                                                                          TCCCTGAAGTCCCAGGTGCCTCCGGGTCCAACTCCCCCTCTGCAGTTCCATCCTCAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGATGATCTTCAACAGAGAGCTGCCCCAGGCTGCTGCTGCTGCTGCTGCTGCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTGAGGCTGGCCAGGTGAATGTGGTGGTGATCCCAGACGATGGCACAGGTGGGTTCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACAAACAAGGAGGACAGAAACTGTTGACCATGAACTCAGCTCCCCGTGGAGTGCAGTCA
                                                                                                                                                                                                       1317
1617
                                        1557
                                                            1660
                                                                                                   1600
                                                                                                                        1437
                                                                                                                                           1540
                                                                                                                                                               1377
                                                                                                                                                                                  1480
                                                                                                                                                                                                                                              1257
                                                                                                                                                                                                                                                                                                         1300
                                                                                                                                                                                                                                                                                                                             1137
                                                                                                                                                                                                                                                                                                                                                1240
                                                                                                                                                                                                                                                                                                                                                                    1077
                                                                                                                                                                                                                                                                                                                                                                                       1180
                                                                                                                                                                                                                                                                                                                                                                                                          1017
                                                                                                                                                                                                                                                                                                                                                                                                                             1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                 957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      777
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . 당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ωy
                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                         뭐
                                                                                                                                  Ş
                                                                                                                                                                                     Ş
                                                                                                                                                                                                                     В
                        õ
                                                    밁
                                                                         Ş
                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1978
                                                                                                                                                                                                                                                                                                         2381
                                                                                                                                                                                                                                                                                                                                                              2321
                                                                                                                                                                                                                                                                                                                                                                                          2158
                                                                                                                                                                                                                                                                                                                                                                                                                                               2098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1901
                                                                                                                                                                  2398
                                                                                                                                                                                            2501
                                                                                                                                                                                                                       2338
                                                                                                                                                                                                                                                                              2278
                                                                                                                                                                                                                                                                                                                                    2218
                                                                               2621
                                                                                                           2448
2568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGCCCAGTAGCAGCGGTTTTCAATCAGAATGACCCTTGGGCCCCCACTGTGGATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCGGCTATCGCATCCAGACCGTCAGCTTTGCTGGGGGGGCCGATGCCCCAGAACAGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCC 2020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGGCTTCCCCTCGCTACCTGTACCTGGCCAGCAAGCAGCAACAAGTGGGGGCACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCGCCACCCCTGGCTACCTGTACCTGGCCAGCAACCACCAGCAACAAGTGGGGTCACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGCTGCAGGTGACCCGGAAGCAGCTGGAGACCGAGGAGCAGGCTGCCTTCCCCCTGGGA 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGA 1900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTGAGGATATGGCTTTTGTCCCCACGGCGATACCCTGGAGCCCTGAGCACCAGATACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCCACAGCGCCCACTTCAAGGTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGG
                                                                                                                                                                               GAGGGATGGGGAGCAGCTGGGCAGCCGGCAGCCTGGTTCCCTTTTCCTGTGCCAG
                                                                                                                                                                                                                                    TCTCACAACTAGGCGGTCCTGGGATGGGGCATGTGGCCAAGGGCTCCAGGGCCAGGGTGT
                                                                                                                                                                                                                                                                                                                                                 GACTCCATCTACCTCCGAGGGGACCAGGATGCTGGGGGCCTGCGAGGTCAACCCCCTAGCT
                                                                                                                                                                                                                                                                                                                                                                                                        GTGGGCTTCTTCCTCCGACCCTATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTTTTCTGCATATCCCACATGCAGAGGACATTCCTAACACAGTGACTGTGGGGAACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGCCCAGCAGCTCCAGCGTCTTCAATCAGAATGACCCCTGGACTCCCACCGTGGACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGTGATGCCTGACACAGGGGACACTGAACCTTGTTGATGCCAGCTGTACTGAGTTCTCA
                                                                                                      GTTCCTCCCTCTCCCATCTTCTGCCCTTGCCTCCTCAACCCTGGAAGTATCCATAGC
                                                                                                                                                                                                                                                                                            TGCCTGCCCCAGGCTGCCTGTGCCCCGACCTCCCTGCCTTCTCCCCACGGGGGCTTC
                                                                                                                                                                                                                                                                                                                                    GACTCCATCTACTTCCGGGAAGGCCAGGATGCTGGGTCCTGTGAGATCAACCCCCTGGCT
                                                                                                                                                                                                                                                                                                                                                                                          GTGGGCTTCTTCTTGAGACCCTACAACTTCTTTGACCAGGAGCCCTCCATGGATTCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTTTCCTGCACATCCCACATGCAGAGGATATTCCCCAACACGGTGACGGTGGGGGAACGGT
               TCCACAGAGGCCAGGCATGGCCCAGGCCTGGAGCCGTGGCCGAGG
                                                                                                                                     GACTCTCTTTCCTTCCACTACCCTCCCTCGCATCCGCCTCTGAGCCAGGAGCCTCCTGACC
                                                                                                                                                                  GTGGAGAGGGGGAGGGGCTGGGCACTGAG-----TTTCTCCCAGCTCCCACCCCAG
                                                                                                                                                                                                                       CCTGAGTACTAGGTGGTCCTTGGGGCGAGGAATGTGTCTAGGACCCAAAGACAAGGGAGT
                                                                                                                                                                                                                                                                             TGCCTGCCCCAGGCTGCTACCTGTGCCCCTGACCTCCCTGTCTTCTCCCACGGGGGCTAC
TCGCAGAGAGAAAAGGAATGGCCAACTGGGAGTCTAGAATGATG
                                                     CTGTGCTGCCTGACCCATGGGCTTCTCAACTCTGTTGACTCCTGACCTGCTGCATTCCTA
2611
                           2724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1677
                                                                                                                                                                                                                                                   2500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1960
                                                                                                                                                                                            2560
                                                                                                                                                                                                                                                                                                       2440
                                                                                                                                                                                                                                                                                                                                                              2380
                                                                                                                                                                                                                                                                                                                                                                                          2217
                                                                                                                                                                                                                                                                                                                                                                                                                    2320
                                                                                                                                                                                                                                                                                                                                                                                                                                               2157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1917
                                                                                                      2507
                                                                                                                                      2620
                                                                                                                                                                  2447
                                                                                                                                                                                                                         2397
                                                                                                                                                                                                                                                                              2337
                                                                                                                                                                                                                                                                                                                                    2277
```

RESULT 15 AF115411

AF115411

4210 đđ

mRNA

linear

ROD

12-OCT-1999

8

Similarity

AATGAACCAGAAGACAATCCTCGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTT

364;

0

Gaps

0

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
SOURCE
ORGANISM
                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
MEDLINE
PUBMED
Query Match
Best Local Sim
Matches 1924;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 4210)
Moldes, M., Feve, B. and Pairault, J.
Molecular cloning of a major mRNA species in murine 3T3 adipocyte lineage, differentiation-dependent expression, regulation, and identification as semicarbazide-sensitive amine oxidase
J. Biol. Chem. 274 (14), 9515-9523 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
Submitted (21-DEC-1998) Institut Biomedical des Cordeliers,
7079 UPMC CNRS, 15,rue de l'Ecole de Medecine, 75270 Paris (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus semicarbazide-sensitive amine oxidase mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AF115411
AF115411.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 (bases 1 to 4210)
Moldes,M., Feve,B. and Pairault,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10092636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                France
                                                                                                                            940
                                                                                                                                           /note="topaquinone site"
                                                                                                                                                                                                                                                                                                                                                           QSGDRATWFGLYYNLSGAGFYPHPIGLELLIDHKALDPALWTIQKVFYQGRYYESLTQ
LEDQFEAGLVHVVLVENNGTGGSWSLKSSVPPGPAPPLQFHPQGPRESVQGSQVSSSL
WAFSFGLGAFSGPRIFDIRFGGSWSLKSSVPPGPAPPLQFHPQGPRESVQGSQVSSSL
WAFSFFLIRGVDCPYLATYDWHFLLESQAPKTLRDAFCVFEQNGLPLRCHUSDFSGIG
KYSTPLIRGVDCPYLATYDWHFFLLESQAPKTLRDAFCVFEQNGLPLRCHHSDFYSH
YFGGVVGTVLVVRSVSTLLNYDYIWDMVFHPNGAIEVKFHATGYISAFFFGAGEKFG
KRVGAHTLGTVHTHSAHFKVDLDVAGLKNWAWAEDMAFVPTIYWQQPEYOMGRLOVTR
KLLETEEAAFFLGGATPRYLYLASNHSNKWGHRRGYRJLSFGAGKPLPQESPIEKA
FTWGRYHLAVTQRKEEBPSSSSIFNQNUPWTPTVDFTDFISNETIAGEDLVAWTAGF
LHIPHAEDIPNTVTAGNSVGFFLRPYNFFDEDPSFHSADSIYFREGQDATACEVNPLA
CLSQTATCAPEIPAFSHGGFAXRDN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="semicarbazide-sensitive amine oxidase"
/protein_id="AAD09199.1"
/db_xref="G1:4188817"
/db_xref="G1:4188817"
/tbxnslation="MTQKTTLVLIALAVITIFALVCVLLAGRSGDGGGLSQPLHCPSV/translation="MTQKTTLVLIALAVITIFALVCVLLAGRSGDGGGLSQPLHCPSVLPSVQPRTHPSQSQPFADLSPEELTAVWSFLTKHLGPGLVDAAQARPSONCVESVELQLPAKAAALAHLDRGGPPPVREALAIIFFGGQPKPNVSELVVGPLPHPSYMRDVTVERHGGPLPYYRRPVLDREXQDIEEMIFHRELPQASGLLHHCCFYKHGGQNLLTMTTAPRGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note-"transmembrane enzyme; strongly inhibited by semicarbazide, aminoguanidine and hydrazine derivatives such as phenelzine and hydrazine; abundantly expressed in white and brown adipose tissues and the aorta; expressed at a low level in lung and muscle; MSSAO"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /function="catalyzes the oxydation of primary amines such as benzylamine, methyl amine, N1-acetyl-putrescine, beta phenylethylamine, tyramine and histamine"
                                                                                                                                                                                                                                              /note="
244..2
                                                                                                                                                                                               /note="extracellular 1576. .1578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:10090"
/cell_line="3T3-L1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EC_number="1.4.3.6"
                                                                                                                                                                                                                                                                                                              'note-"
                                                                                                                            1191
                           42.2%;
84.1%;
                                                                                                                            ဂ
                                                                                                                                                                                                                                                                    transmembrane-region
                                                                                                                                                                                                                                                                                                                   intracellular
                                                                                                                            1039
    Score 1705.6;
Pred. No. 0;
0; Mismatches
                                                                                                                         g
                                                                                                                                                                        cofactor binding
                                                                                                                                                                                                                     domain; unclassified
                                                                                                                                                                                                                                                                                                                   domain;
                                                                                                                            1040
                                                                                                                                                                                                                                                                       site"
                                                    DB
                                                                                                                                                                                                                                                                                                                   unclassified
                                                      10;
                                                    Length
                                                                                                                                                                        site; unclassified
                                                                                                                                                                                                                                                                                                                      site"
                                                                                                                                                                                                                          site"
                                                         4210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cedex
```

299	1240 TTATGAGATAAGCCTCCAAGAGGCCTTGGCCATCTATGGTGGAAATTCCCCCAGCAGCAAT 1	γQ
239	1180 CCTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGTTCGCTTCCAAGGAGAAGAAGACTAGT 1 	gb Qy
179 184	20 CCCCGCTTCAGTGTCCAGGGAAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTGG 1	Db Qy
119 124	060 GTCCTGAAGTCCCCTGTGCCCCCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGG 1	Db Qy
059 064	.000 GTTTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTG 1	Db Qy
99	40 TATCCASAAGGTGTTCTATCAAGGCCGCTACTACGACAGCCTGGCCCAGCTGGAGGCCCA 9	dg Vy
39	80 GCACCACGTGGGCTTGGACCTGCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGAC 9	D Q
79	20 AGGGACCGGCCACCTGGTTTGGCCTCTACTACAACATCTCGGGCGCTGGGTTCTTCCT 8	Db
19 24	60 CTACAAGCACCGGGGACGGAACCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATC 8	Db. Qy
59	00 CCAGATGATCTTCAACAGAGAGCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTT 7	Db
99	40 TGG	dg Vy
4 4 9	80 GCTGGTGGTGGGGCCACŢGCCTCACCCCT 	p 29
79 84	25 H	pb dy
19 24	60 GTTGCAGCTGC	Db Qy
59	400 GCCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTCGGACAACTGTGTCTCTCAGTGGA 4	gg Qy
99		Фу
.39 44	280 TIGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTT 3	gg dy
179 184	220 GGTTTGTGTCCTGCTGGTGGGCAGGGGTGGAGATGGGGGTGAACCCAGCCAG	g dy
24		Db

	Db 1245 Oy 1300 Db 1305 Oy 1365 Oy 1420 Oy 1480 Db 1485 Oy 1540 Oy 1545 Oy 1600 Db 1565
AV A	100 L
1665 1665 1720 1720 1785 1785 1990 1990 1990 1990 1990 1990 1990 199	
TIGTTACTGGGAAGTTAGGGGAACCAAGTGTCAGAGCACCCTGGGCAGGTCCA	CTATGAAATCAGTGTCCAAGAGGCCATAGCCCTCTACGGTGGAAATTCCCCAGCATCAAT 1304 GACGACCCGCTATGTGGATGGAGGCTTTGGCATGGCCAAGTACACCACCCCCTGACCC 1359 [

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Searched:
                                                                                                                                                                                                                                                                                                                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                      4039.6
4039.6
                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic search, using sw model
                                                                                                                                                                                                                     Query
Match
      100.0
100.0
61.9
25.2
17.7
10.5
10.5
9.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   May 20, 2003, 02:38:03; Search time 826 Seconds (without alignments) 11014.616 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                    N_Geneseq_101002:*
1: /SIDS2/gcgdata/
2: /SIDS2/gcgdata/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2185239 seqs, 1125999159 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                     1: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1981.DAT: *
2: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1981.DAT: *
3: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1981.DAT: *
3: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1982.DAT: *
3: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1983.DAT: *
3: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1983.DAT: *
5: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1985.DAT: *
5: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1985.DAT: *
6: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1985.DAT: *
7: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1987.DAT: *
8: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1989.DAT: *
9: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1999.DAT: *
10: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1999.DAT: *
11: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1999.DAT: *
11: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1991.DAT: *
12: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1991.DAT: *
13: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1993.DAT: *
14: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1993.DAT: *
15: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1993.DAT: *
16: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1993.DAT: *
17: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1993.DAT: *
18: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1993.DAT: *
19: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1993.DAT: *
20: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1993.DAT: *
21: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA1993.DAT: *
22: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA2000.DAT: *
23: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001B.DAT: *
24: \SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001B.DAT: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                     Length DB
    4040
4040
2501
2572
1051
2441
2441
401
360
                                                                                                                                                                                                                       Ħ
  AAX28632
ABK35481
ABK63566
ABL62445
ABL67675
AAC04285
AAZ33582
                                                                                                                                                      ABL61904
ABL65211
                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4370478
                                      Nucleotide sequenc
Human endometrial
Rat sequence diffe
Colon adenocarcino
Oesophagus cancer
                                                                                                                                                                                                                 Description
Human
Human
                                                                                                                                                  Colon adenocarcino
Lung cancer relate
secreted pro
breast tumou
```

4444	40000044	331 331 331	00122222 00122222	10 11 12 13 14 15 16 17
	555555555555555555555555555555555555555	<u> </u>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	150.6 73.6 69.8 69.8 69.8 69.8
				7. 1.8 1.7 1.7
7104 7104 9707 10028 6146	10732 4386 4386 65921 19243 2035	467 467 467 416 60 60	289 289 467 467	1545 747 303 289 289 289 289 289 289
				22222222
ABLJ/0395 ABL34588 ABL33420 AAK68407 ABA07752	AAA10594 AAZ89047 AAZ89047 AAZ84997 AAZ89046 AAK71662 AAK17070 AAL29253	AAII11398 AAII131398 AAII00089 ABS00093 ABN90024 ABN40805 ABN40863	AAI44633 AAI05166 ABS12710 ABA51780 ABA21610 AAK00089 AAK25525	AAS69129 AABQ54593 AABQ443972 ABA46592 ABA64456 ABA31594 AABA31594 AAK38641 AAK38641
			·	
Chemically treated Human metastasis a Human immune syste Human immune/haema Human ovarian and	Gene encoding a su Human nibrin DNA. MBS1 gene associat Human nibrin DNA. Human immune/haema Human CDNA sequenc Human SNP oligonuc	Probe #81 tor gene Probe #84 used to Probe #80 used to Human genome deriv Mouse clone IXX3_7 Human spliced tran Human spliced tran Human spliced tran	#13319 us genome-c foetal l foain es bone mai	DNA encoding nivel Human ovarian anti Human secreted exp Human foetal liver Probe #10060 for g Human brain expres Human bone marrow Probe #9374 for ge

00000000000

ALIGNMENTS

RESULT 1
ABL61
ABL61
XX
AXA ABL6
XX
DT 15-M
DT 15-M
DT 15-M
COLC
XX
CUCC
XX
CU 05-JUN-2000; 05-JUN-2000; 18-SEP-2000; 18-SEP-2000; 20-SEP-2000; 20-SEP-2000; 20-SEP-2000; 22-SEP-2000; 22-SEP-2000; Human; cancer; colon; breast; ovary; oesophagus; kidney; thyroid; stomach; lung; prostate; pancreas; carcinoma; antitumour; cancerous; cytostatic; gene therapy; antineoplastic; Wilm's tumour; adenocarcinoma; cytostatic; gene; ds. Colon adenocarcinoma related ABL61904 standard; DNA; 4040 BP 30-MAY-2001; 2001WO-US10838 WO200194629-A2 Homo sapiens 15-MAY-2002 ABL61904; 13-DEC-2001. 2000US-209473P. 2000US-209531P. 2000US-233133P. 2000US-233617P. 2000US-234009P. 2000US-234034P. 2000US-234052P. 2000US-234509P. 2000US-234567P. (first entry) gene sequence SEQ IJ NO:241

```
The present invention describes a method (M1) for screening for an anti-neoplastic agent. The method involves exposing cells to a chemical cagent to be tested for anti-neoplastic activity, determining a change in cagent to be tested for anti-neoplastic activity, determining a change in comprises a sequence (S) selected from 8447 sequences (given in ABL6164 cc comprises a sequence (S) selected from 8447 sequences (given in ABL6164 cc expression is indicative of anti-neoplastic activity. (I) has cytostatic cativity and can be used in gene therapy. MI can be used for screening cc an anti-neoplastic agent, and can be used for product which is the data collected with respect to the anti-neoplastic agent as a cresult of M1, and the data is sufficient to convey the chemical cc structure and/or properties of the agent. MI can be used in the creatment of cancer such as colon, breast, stomach, lung, thyroid, company carcinoma, clear cell cancer, infiltrating ductal cancer, infiltrating doublar cancer, squamous cell carcinoma, neuroendocrine carcinoma, papillary carcinoma and Wilm's tumour.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25-SEP-2000;

25-SEP-2000;

25-SEP-2000;

25-SEP-2000;

25-SEP-2000;

26-SEP-2000;

26-SEP-2000;

27-SEP-2000;

27-SEP-2000;

27-SEP-2000;

27-SEP-2000;

28-SEP-2000;

29-SEP-2000;

29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Screening for anti-neoplastic agent involves exposing cells to chemical agent to be tested for anti-neoplastic activity, and determining a change in expression of a gene of a signature go
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (AVAL-) AVALON PHARM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PE,
DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2002-188264/24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID 241;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Augustus M, Weaver Z;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-23563BP
2000US-235711P
2000US-235840P
2000US-235863P
2000US-236028P
2000US-236033P
2000US-236033P
2000US-236109P
2000US-236109P
2000US-236111P
2000US-236111P
2000US-23691P
2000US-237173P
2000US-2372778P
2000US-2372778P
2000US-2372794P
2000US-237294P
2000US-237294P
2000US-237316P
2000US-237316P
2000US-237316P
2000US-237316P
2000US-237504P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-234923P.
2000US-234924P.
2000US-235077P.
2000US-235082P.
2000US-235134P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Carter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ebner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Endress
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Horrigan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            set
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
```

Ş

μ

GTCCTTCCCACCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA 60

Query Match Best Local S Matches 4039

Local Similarity les 4039; Conserv

Conservative

100.0%;

Score 4039.6; Pred. No. 0; 1; Mismatches

DB

24;

0;

Indels Length

0 4040;

Gaps

0

Sequence

4040

BP; 825

A; 1183

C; 1097 G;

934

T; 1 other;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                Š
                                       밁
                                                        õ
                                                                             В
                                                                                            Š
                                                                                                                    밁
                                                                                                                                     QΥ
                                                                                                                                                           밁
                                                                                                                                                                          δÃ
                                                                                                                                                                                                밁
                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                        Ŷ
                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
  밁
                     1081
                                        1021
                                                           1021
                                                                                                                     901
                                                                                                                                                           841
                                                                                                                                                                            841
                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                       109
                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                              961
                                                                                                961
                                                                                                                                       901
                                                                                                                                                                                                 781
                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                          CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT
                                                                                                                                                                                               TCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAGGCCCGGCCCTCGGACAACTGTGTCTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGGGGTGGAGATGGGGGTGAACCCAGCCAGCCACTCCCCATTGCCCCTCTGTATCTCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCCCCACCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCCCCACCCCGTCCAGGAGCCAACAGAGCCCCCCGTCTTGCTGGCGTGAGAATACATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCCTTCCCACCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA
CCCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGG
                                                                            GCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAA
                                                                                                                                                                                                                                                                              CCGACGCCCCGTGCTGCTTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGA
                                                                                                                                                                                                                                                                                        CCGACGCCCCGTGCTGTTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGA
                                                                                                                                                                                                                                                                                                                                                          TGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCTGCCCGGGAGGCACTGGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                           TGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCTGCCCGGGAGGCACTGGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                        CCAGGCCCGGCCCTCGGACAACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGGCCAGGGCTGGTGGATGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT
                                                                                                                                       GCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCA
                                                                                                                                                                                                                                        CCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAA
                                                  TGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGGTCCCTGAAGTCCCCTGTGCC
                                        TGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGGTCCCTGAAGTCCCCTGTGCC
                                                                                                 1020
                                                                                                                                                                                                                                                                                                                                                                             600
                     1140
                                         1080
                                                            1080
                                                                               1020
                                                                                                                                       960
                                                                                                                                                                                                                     840
                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                  720
                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                     960
                                                                                                                                                           900
                                                                                                                                                                            900
                                                                                                                                                                                                 840
                                                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                              720
                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
```

	\$AATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATG FGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCAC FILLI	Qy Db
	101 TITCAATCAGAATGACCCTTGGGCCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGA 21	2. Qy
	2041 GGAGAGGTACCAGCTGGCTGTGACCCAGCGGAAGGAGGAGGAGGAGCCCAGTAGCAGCAGCGT 2100	p oy
	1981 GCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTG 2040	Оy
	1921 GTACCTGGCCAGCAACCACAGCAACAAGTGGGGTCACCCCGGGGCCTACCGCATCCAGAT 1980 	Оу
_	1861 GCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCT 1920 	Оy
	1801 CCCCATGGCTGTGCCCTGGAGCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAA 1860 	Db Qy
	1741 GGTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGT 1800 	Оу
	1681 CGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTCAA 1740	рb
<u></u> .	1621 ACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTA 1680 	ОУ
	1561 CTTGCTCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAAT 1620 	dg VQ
	1501 CTACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCAC 1560 	Db Qy
	1441 TGCCTTTTGTGTGTGTTTGAACAGAACCAGGGCCTCCCCCTGCGGGGACACCACTCAGATCT 1500 	ОУ
	1381 GGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCAAGACAATACGTGA 1440 	Оy
· · · ·	1321 AGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACTT 1380	Db Qy
	1261 GGCCTTGGCCATCTATGGTGGAAATTCCCCCAGCAGCAATGACGACCCGCTATGTGGATGG 1320 	Db Qy
	1201 AAGGATCTTTGACGTTCGCGTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGA 1260 	Оу
·.	1141 AAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTTGGCCTCGGAGCATTCAGTGGCCC 1200 	ф

GIG	CTCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCTCAAGTTAGCATTTC	ز	5	_
GTGA 330	CTCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAA	3241	γ Q	
TCATG 3240	CTGGGGCTGGGTGTTTTCAGGACAGCTGCTTCTGTGCATTTGTGTCTGCCTGC	3181	dq Vo	
CTGTC 3180	TGTGTGTCGTTCCCTTGTGTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACCG	3121	Db Qy	
ATCCC 3120 ATCCC 3120	CCTCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAA	3061 3061	Db Qy	
CGTCT 3060	ATCCCTATGTCCCAGCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTC .	3001	p Qy	
GGGAT 3000 11111 GGGAT 3000	TCCTCCTCCTGTTCCTGCCTTCTCTTCTATCCTGCAATTTCTCCCGAATCCTGAC	2941 2941	Db Qy	
CCTCC 2940 	ACATTCCCTCTCATCCAGGTCCTTTCCTTCTCGTCTTCTCTCTC	2881 2881	Оу	•
TGCTC 2880	CCAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCTGAGCTGGAAAGGATGCTTCT	2821 2821	DB 024	
AGACC 2820 AGACC 2820	TTCCCGAATCTTTTTAGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGG	2761 2761	Qy	
TGGCT 2760	CCCAGCCTGGAGCCGTGGCCGAGGGCTTCCCTAGATGGTTCCCTTTGTTGCTGTC	2701 2701	Оу	
CATGG 2700	GACACTGAACCTTGTTGATGCCAGCTGTÄCTGAGTTCTCATCCACAGAGGCCAGG	2641 2641	Оу	
CAGGG 2640 CAGGG 2640	CCTCCCTCGCATCCGCCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCTGACCCTGACAC 	2581 2581	ду рь	
CACTAC 2580	GCACTGGGCCGGCAGCCTGGTTCCCTCTTTCCTGTGCCAGGACTCTCTTTCTT	2521 2521	Оy	
GCTGG 2520 GCTGG 2520	. GGGATGGGGCATGTGGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAG	2461 2461	Оy	
GTCCT 2460	CTGTGCCCCCGACCTCCCTGCCTTCTCCCACGGGGGCTTCTCTCACAACTAGGCG	2401 2401	Оу	
GCTGC 2400 	GACCAGGATGCTGGGGCCTGCGAGGTCAACCCCCTAGCTTGCCTGCC	2341 2341	Qу Дъ	
CGAGG 2340 CGAGG 2340	CTATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCC	2281 2281	Оу	
CGACC 2280 CGACC 2280	TGCAGAGACATTCCTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCC	2221 2221	Db Qy	

```
γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
Š
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                   Ω
                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3301
                                                                                         stomach; lun
cytostatic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3781
                                                                                                                                           Lung
                                                                                                                   Human;
          13-DEC-2001
                                  WO200194629-A2
                                                                                                                                                                                            ABL65211;
                                                                                                                                                                                                                  ABL65211 standard; DNA; 4040
                                                                                                                                                                    15-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTAAAAAATAATTGTATGTATGTATATATACTAATATGTAATAATCTTCAGGTGAAAAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAACAGAAACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGAGCTGGGCCCTGGGTGAGGTGGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGGCCTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCCTACAACTCCAGCCAGCCAGCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGCCTGTTTGGGAGGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGGGGAACCAGTAGGTTGAGGACAGGAGAGAGGGTCTTAACACTTACACCCTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGCCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTCAGAAAGGAGTAGAATATA 3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTCTCTAAAGGACTGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGCCTGGGT
                                                                                                                                            cancer
                                                                                                                                                                                                                                                                              CCCAAAAAAAAAAAAAAAA 4040
                                                                                                                                                                                                                                                                                                     CCCAAAAAAAAAAAAAAAA 4040
                                                                                                                                                                                                                                                                                                                                                       TACATTTTGAATTTTGAACCATGTGACTGTATTACCTATTCAAAATAAACAATAAATGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                   AACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGCCACAGAAATGTGTWTAGCGCACTTCCCATTTGTGTTTTCAGAAAGGAGTAGAATATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTCCTG
                                                                                                                                                                                                                                                                                                                                                                               GAGGGGAACCAGTAGGTTGAGGACAGGAGAGGGAAGGGTCTTAACACTTACACCCTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                            AACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAGAAACTTT
                                                                                         cancer; colon; breast; ovary; oesophagus; kidney; thyroid;
h; lung; prostate; pancreas; carcinoma; antitumour; cancerous;
atic; gene therapy; antineoplastic; Wilm's tumour; adenocarcin
                                                                                                                                            related
                                                                                                                                                                   (first entry)
                                                                                                                                           gene
                                                                                                                                           sequence
                                                                                                                                            SEQ
                                                                                                                                            ij
                                                                                                                                            NO:3548
                                                                                            adenocarcinoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3540
                                                                                                                                                                                                                                                                                                                                                                                                                                                   3900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3660
                                                                                                                                                                                                                                                                                                                              4020
                                                                                                                                                                                                                                                                                                                                                       4020
                                                                                                                                                                                                                                                                                                                                                                                                                            3900
```

```
05-JUN-2000;
05-JUN-2000;
18-SEP-2000;
18-SEP-2000;
20-SEP-2000;
                                                                                                                                                                          28-SEP-2000

28-SEP-2000

28-SEP-2000

28-SEP-2000

28-SEP-2000

28-SEP-2000

29-SEP-2000

29-SEP-2000

02-OCT-2000

02-OCT-2000

02-OCT-2000

02-OCT-2000

03-OCT-2000

03-OCT-2000

03-OCT-2000

03-OCT-2000

03-OCT-2000
                                                                                                                                                                                                                                                                  20-SEP-2000
22-SEP-2000
22-SEP-2000
22-SEP-2000
25-SEP-2000
25-SEP-2000
25-SEP-2000
25-SEP-2000
25-SEP-2000
25-SEP-2000
26-SEP-2000
27-SEP-2000
27-SEP-2000
27-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                     30-MAY-2001;
                                                                                                                                           (AVAL-)
                                                                                                                                            AVALON PHARM
                                                                                                                                                                                                                                                                                                                2000US-209531P.
2000US-233133P.
2000US-234617P.
2000US-234009P.
2000US-234052P.
2000US-234557P.
2000US-234567P.
2000US-234567P.
2000US-234567P.
2000US-234567P.
                                                                                                                                                                                                                                                                                                                                                                                     2001WO-US10838
```

Soppet T PE, Augustus M, Weaver Z; Carter KC, Ebner R, Endress G, Horrigan s

WPI; 2002-188264/24.

Screening for anti-neoplastic agent involves exposing cells chemical agent to be tested for anti-neoplastic activity, ar determining a change in expression of a gene of a signature ls to and gene set

Claim 1; SEQ ID 3548; 44pp; English.

The present invention describes a method (M1) for screening for an anti-neoplastic agent. The method involves exposing cells to a chemical carefulty, determining a change in agent to be tested for anti-neoplastic activity, determining a change in capression of at least one gene (I) of a signature gene set, where (I) comprises a sequence (S) selected from 8447 sequences (given in ABL61644 (to ABL70110), or is at least 95% identical to (S), where a change in capression is indicative of anti-neoplastic activity. (I) has cytostatic expression is indicative of anti-neoplastic activity and can be used in gene therapy. M1 can be used for screening cartivity and can be used in gene therapy. M1 can be used for screening can anti-neoplastic agent, and can be used for product which cis the data collected with respect to the anti-neoplastic agent as a creativity and the data is sufficient to convey the chemical correct consophageal, ovarian, kidney, prostate or pancreatic cancer. carcinoma, clear infiltrating ductal cancer

```
g
Vo
                                         밁
                                                   Ω
                                                                 8
                                                                         Qy
                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                    SSSS
                                                                                        В
                                                                                                Ω
                                                                                                            В
                                                                                                                       Ş
                                                                                                                                                         망
                                                                                                                                                                    δõ
                                                                                                                                                                                ₽
                                                                                                                                                                                        δÃ
                                                                                                                                                                                                   ₽
                                                                                                                                                                                                             Š
                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                      밁
 밁
          δ
                                                                                                                                  밁
                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                               Matches 4039;
                                                                                                                                                                                                                                                                                                                                                                                              infiltrating lobular carcinoma, papillary
                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                      841
                               841
                                                                  721
                                                                                        661
                                                                                                                                    541
                                                                                                                                              541
                                                                                                                                                          481
                                                                                                                                                                    481
                                                                                                                                                                                421
                                                                                                                                                                                                     361
 901
           901
                                            781
                                                                             721
                                                                                                   661
                                                                                                              601
                                                                                                                         601
                                                                                                                                                                                           421
                                                                                                                                                                                                                361
                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                       121
                                                       781
                                                                                                                                                                                                                                                                                                                   13
                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                       CCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTT
                                                                                                                                                                              CAGGGGTGGAGATGGGGGTGAACCCAGCCAGCCTCCCCATTGCCCCTCTGTATCTCCCAG
                                                                                                                                                                                                                                                                     GCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCA 960
                                                                                                                                                         GCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGC
                                                                                                                                                                                                                                                                                            GCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAA 780
                                                                                       CCGACGCCCCGTGCTGTTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGA 720
                                                                                                             TCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCA
                                                                                                                    TCACCCCTCCTACATGCGGGACGTGACTGTGGAGGGTCATGGAGGCCCCCTGCCCTATCA 660
                                                                                                                                        GCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAA
                                                                                                                                    Similarity 100.
39; Conservative
                                                                                                                                                                                                                                                                                                                                                                                    4040
                                                                                                                                                                                                                                                                                                                                                                                    B₽;
                                                                                                                                                                                                                                                                                                                                                                                    825
                                                                                                                                                                                                                                                                                                                                                                   100.0%;
                                                                                                                                                                                                                                                                                                                                                                                               cancer, squamous cell carcinoma,
carcinoma and Wilm's tumour.
                                                                                                                                                                                                                                                                                                                                                                                    A; 1183 C; 1097 G; 934 T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                    Pred. No.
                                                                                                                                                                                                                                                                                                                                                                         Score 4039.6;
                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                         24;
                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                     neuroendocrine
                                                                                                                                                                                                                                                                                                                                                              0,:
                                                                                                                                                                                                                                                                                                                                                                         4040;
                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                      840
                                                                                       720
                                                                                                                                                                                          480
                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                480
                                            840
                                                                 780
                                                                                                             660
                                                                                                                                    600
                                                                                                                                               600
                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                              0
    В
             δ
                        Вb
                                   δÃ
                                                Вþ
                                                        Qγ
                                                                      Вр
                                                                               δÃ
     1981
               1981
                           1921
                                      1921
                                                 1861
                                                           1861
```

Ş

GTACCTGGCCAGCAACCACGCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGAT

GCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGAGGCTTCAGCTG

GCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTG GGAGAGGTACCAGCTGTGACCCAGCGGAAGGAGGAGCAGCCCAGTAGCAGCAGCGT

1980 2040 2040 2100 GCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCT

1920 1920 CCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAA 1860

dg VQ	Qy Db	ОУ	pb dy	Qу	Оy	Db Qy	Qу	Qy Db	рь	pb dy	Db Qy	Qy Db	Оy	
1741 1741	1681 . 1681	1621 1621	1561 1561	1501 1501	1441 1441	1381	1321 1321	1261 1261	1201 1201	1141 1141	1081	1021	961 961	
GGTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGT 1	CGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCACACGCGCCCACTTCAA 1	ACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTA 1	CTTGCTCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAAT 1	CTACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCAC 1	TGCCTTTTGTGTGTTTTGAACAGAACCAGGGCCTCCCCCTGCGGCGACACCACTCAGATCT 1	GGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCAAGACAATACGTGA 1. 	AGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGBTGGACTGCCCCTACTT 1	CGCTATGTGGATGG 1	AAGGATCTTTGACGTTCCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGA 1:	AAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCC 1:	CCCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGG 11	TGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGGTCCCTGAAGTCCCCTGTGCC 10	AGGCCGCTACCACGACAGCCTGGCCCAGCTGGAGGCCCAGTTTGAGGCCGGCC	
800	740 740	680	620 620	560 560	500	440	380	320 320	260 260	200	140	080	020 020	

210 210 216 216 216 222
TTCAATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACCATCAACAATGA 216
01 TTTCAATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGA 21

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                          γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
 밁
                 Qy
                                        В
                                                        QΥ
                                                                               밁
                                                                                                 Š
                                                                                                                     밁
                                                                                                                                        δÃ
                                                                                                                                                            밁
                                                                                                                                                                              Š
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                      Ωy
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                            3421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3121
                                                                                                                                                                                                    3721
                                                                                                                                                                                                                                                                                                                                             3541
                                                                                                                                                                                                                                                                                                                                                                  3481
                                                                                                                                                                                                                                                                                                                                                                                       3481
                                                                                                                                                                                                                                                                                                                                                                                                         3421
                                                                                                                                                                                                                                                                                                                                                                                                                                                3361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3241
 4021
                    4021
                                                          3961
                                                                               3901
                                                                                                                       3841
                                                                                                                                         3841
                                                                                                                                                              3781
                                                                                                                                                                                                                       3721
                                                                                                                                                                                                                                           3661
                                                                                                                                                                                                                                                                                   3601
                                                                                                                                                                                                                                                                                                      3601
                                                                                                                                                                                                                                                                                                                         3541
                                        3961
                                                                                                   3901
                                                                                                                                                                                3781
                                                                                                                                                                                                                                                              3661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTCTCTAAAGGACTGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGG
                                                                                                                                                                                                  GGGGCAGGGCCTGGCTGGTCCAGGCTTGGGCCTCCATTCCCATCACTGCTGTCCCTGCTG
                                                                                                                                                                                                                                                                                                                                                                            ATGAGCTGGGCCCTGGGTGAGGTGGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGCCTGGCT 3540
                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCCTACAACTCCAGCCAGCCAGCCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGA 3480
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGCCTGTTTGGGAGGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAA 3420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGTGTGTCGTTCCCTTGTGTCTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGTC
CCCAAAAAAAAAAAAAAAAAAA
                    CCCAAAAAAAAAAAAAAA 4040
                                                                                                                                                                        AAGCCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTCAGAAAAGGAGTAGAATATA
                                                                                                                                                                                                                                                                                  AGGTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAACAGAAACTTT
                                                                                                                                                                                                                                                                                                                          GGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTCCTG
                                                                                                                                                                                                                                                                                                                                                                  ATGAGCTGGGCCCTGGGTGAGGTGGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGCCTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                         GCCCCTACAACTCCAGCCACCCAGCCAGGGGGGGGGGTGTCCAATCACATTCAGGCATGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGCCTGTTTGGGAGGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTGGGGGGTGCAATGATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGCAA 3360
                                                                                                                       AACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGG
                                                                                                                                                              AAGCCACAGAAATGTGTWTAGCGCACTTCCCATTTGTGTTTCAGAAAGGAGTAGAATATA
 4040
                                                                                                                                                                               3840
                                                                                                                                                                                                                                                                                                      3660
                                                                                                                                                                                                                                                                                                                                                                                                         3480
                                                                                                                                                                                                                                                                                                                                                                                                                                               3420
                                         4020
                                                          4020
                                                                               3960
                                                                                                   3960
                                                                                                                       3900
                                                                                                                                           3900
                                                                                                                                                              3840
                                                                                                                                                                                                   3780
                                                                                                                                                                                                                       3780
                                                                                                                                                                                                                                           3720
                                                                                                                                                                                                                                                              3720
                                                                                                                                                                                                                                                                                   3660
                                                                                                                                                                                                                                                                                                                          3600
                                                                                                                                                                                                                                                                                                                                             3600
                                                                                                                                                                                                                                                                                                                                                                  3540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3180
```

RESULT 3
AAX28632
ID AAX2
XX
AC AAX2
XX
DT 21-J
XX
DE Nucl

AAX28632 standard; DNA; 2501 ΒP

AAX28632;

21-JUN-1999 (first entry)

Nucleotide sequence of the vascular adhesion protein-1.

```
misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo
misc_feature
                                misc_feature
                                                               misc_feature
                                                                                              misc_feature
                                                                                                                             misc_feature
                                                                                                                                                              misc_feature
                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human; vascular adhesion protein-1; VAP-1; endothelial cell;
lymphocyte; inhibition; amine oxidase; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sapiens.
                                                                                                                                                                                                                                               /note= "V8 |
855..866
/*tar-
                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag= h
/note= "potential
960..962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= a
/product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag= f
/note= "potential
489..491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
81..2372
                                                                                                                                                                                                                          /*tag= o
/note= "V8
870..911
                                                                                                                                                                                                                                                                                          /*tag= m
/note= "V8
588..602
/*tag= v
/note= "V8
1950..1991
                               /note- "V8
1879..1883
                                                               /note= "V8
1764..1778
                                                                                                                                                            /*tag= q
/note= "V8
1155..1163
                                                                                                                                                                                           /*tag= p
/note= "V8
1047..1067
                                                                                                                                                                                                                                                                                                                   /*tag= 1
/note= "potential N-glycosylation
300..314
                                                                                                                                                                                                                                                                                                                                              /*tag= k
/note= "potential N-glycosylation site"
2076..2078
                                                                                                                                                                                                                                                                                                                                                                              /*tag= )
/note= "potential N-glycosylation
1932..1934
                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag= i
/note= "potential
1854..1856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= g
/note= "potential
774..776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*tag= e
/note= "potential
2115..2117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag= d
/note= "potential
219..221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag= c
/note= "transmembrane domain"
207..209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= b
/note= "N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "VAP-1"
                                                                                                                                                                      peptide"
                                                                                                                                                                                                       peptide"
                                                                                                                                                                                                                                    peptide"
                                                                                                                                                                                                                                                                                                    peptide"
         peptide'
                                         peptide"
                                                                                                        peptide"
                                                                                                                                       peptide"
                                                                                                                                                                                                                                                                      peptide"
                                                                         peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                   N-glycosylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-glycosylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-glycosylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               O-glycosylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 O-glycosylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               O-glycosylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tryptic peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                site"
                                                                                                                                                                                                                                                                                                                                                                                                    site"
                                                                                                                                                                                                                                                                                                                                                                                                                                    site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   site
                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                          Ş
                                                                                    밁
                                                                                                       S
                                                                                                                                                 Ş
                                                                                                                                                                       밁
                                                                                                                                                                                         Q
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                               β
                                                                                                                                                                                                                                                                                                                                                                 Q
                   õ
                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity Matches 2501; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                      This is the nucleotide sequence encoding the human vascular adhesion protein-1 (VAP-1) used in the method of the invention. The method involves manipulating VAP-1 mediated binding of endothelial cells to lymphocytes which comprises inhibiting the enzymatic activity of amine oxidase in endothelial cells, and potentiating the enzymatic activity of endothelial cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic acid encoding a novel human endothelial cell adhesion protein designated VAP-1 - having an adhesive function and an exidase function useful for manipulating VAP-1 mediated binding endothelial cells to lymphocytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9853049-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (BIOT-)
                                                                                    361
                                                                                                                               301
                                                                                                                                        381 TTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTCGGACA
                                                                                                                                                                        241
                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                      261
                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                 201
                                                                                                                                                                                                                                                                                                                           141
                                                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                    CTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCTCGTGCTCCTCATTCTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1999-131690/11.
DB; AAY03219.
                                                                                  ACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGG
                                                                                                                                                                                                                                                          CCCAGCCCAACGTGAGTGAGCTGGTGGTGGGGCCACTGCCTCACCCCCTCCTACATGCGGG
                                        TTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTCGGACA
                                                                                                                                                                        CTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGCTGACGGCTGTGATGCGCT
                                                                                                                                                                                   CTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGCTGACGGCTGTGATGCGCT
                                                                                                                                                                                                                  AACCCAGCCAGCTTCCCCATTGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACC
                                                                                                                                                                                                                            AACCCAGCCAGCTTCCCCATTGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BIOTIE THERAPIES LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Jalkanen S,
                                                                                                                                                                                                                                                                                                                                                                                                                                   2501 BP; 464 A; 782 C; 719 G; 536 T; 0
                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97US-0862433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98WO-FI00429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note-
                                                                                                                                                                                                                                                                                                                                                                                                  61.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Salmi M,
                                                                                                                                                                                                                                                                                                                                                                                                  Score 2501; D
                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Smith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                               DB
                                                                                                                                                                                                                                                                                                                                                                                                              20;
                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                    other;
                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                               2501;
                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of.
                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                     140
                      620
                                           480
                                                                                    420
                                                                                                         500
                                                                                                                               360
                                                                                                                                                    440
                                                                                                                                                                          300
                                                                                                                                                                                             380
                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                     320
                                                                                                                                                                                                                                                                                 260
                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                           200
  540
                                                                560
```

```
δÃ
                     g
VQ
                                               B 6
                                                                      B 04 B 04
                                                                                                                      å
S
                                                                                                                                              밁
                                                                                                                                                         γQ
                                                                                                                                                                         В
                                                                                                                                                                                  δÃ
                                                                                                                                                                                               g
                                                                                                                                                                                                          ő
                                                                                                                                                                                                                        β
δ
                                                                                                                                                                                                                                                 g Qy
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                              g S
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                  γQ
                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                     S
 g
                                                              1521
                                                                                                                                                                                                                                     1101
                                                                                                                                                                                                                                                                                                                                                                          741
661
                                                                                                                                                                                                                                                                          901
                                                                                                                                                                                                                                                                                                              921
                                                                                                                                                                                                                                                                                                                                     198
                                                                                                                                                                                                                                                                                                                                                              801
                                                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                  721
ACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCAGAGC
                                               AGAACCAGGGCCTCCCCCTGCGGCGACACCCACTCAGATCTCTACTCGCACTACTTTGGGG
                                                                                                                        TCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGAGGCCTTGGCCATCTATGGTG
                                                                                                                                                                                                 TACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGGAAGTCGAGTGGCCTCCTCAC
                                                                                                                                                                                                                               TACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGGAAGTCGAGTGGCCTCCTCAC
                                                                                                                                                                                                                                                TGGCCCAGCTGGAGGCCCAGTTTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACA
                                                                                                                                                                                                                                                                                                 CGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCTGCTAGTGAACCACAAAGGCCC
                                                                                                                                                                                                                                                                                                                                                 TTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAACCTGGTGACAATGACCACGG
                                                                                                                                                                                                                                                                                                                                                                                                 AAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGAGCTGCCCCAGGCTTCTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                          ACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGATGCCTTTTGTGTGTTTTGAAC
                                                                                                                                                                                                                                                                         TGGCCCAGCTGGAGGCCCAGTTTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACA
                                                                                                 ACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGATGCCTTTTGTGTGTTTGAAC
                                                                                                                                                                                                                                    1160
                                                                                                                                                                                                                                                 1020
                                    1640
                                                                         1440
                                                                                     1520
                                                                                                 1380
                                                                                                             1460
                                                                                                                                     1400
                                                                                                                                                             1340
                                                                                                                                                                                                                                                                                     1040
                                                                                                                                                                                                                                                                         960
                                                                                                                                                                                                                                                                                                                                      920
                                                                                                                                                                                                                                                                                                                                                 780
                                                                                                                                                                                                                                                                                                                                                              860
                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                                                                                                                                                                              740
                                                                                                                                                                                                                                                                                                                                                                                                                          600
```

```
RESULT 4
ABK35481
ID ABK3
XX
XX
AC ABK3
XX
DT 08-N
XX
DE Huma
XX
KW Huma
KW DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                   δÃ
                                                                                                                                      В
                                                                                                                                                  δ
                                                                                                                                                                    밁
                                                                                                                                                                               QΥ
                                                                                                                                                                                                  В
                                                                                                                                                                                                               õ
                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                      .1921
                                                                                                                                                                                                                                                                                          2101
                                                                                                                                                                                                                                                                                                                                                       1981
                                                                                                                                                                                                                                                                                                                                                                                                                   1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1701
                                                                                                                                                                                                                                                                                                                                                                                                                                  1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1821
                                                                                                         2461
                                                                                                                                       2401
                                                                                                                                                                                   2421
                                                                                                                                                                                                   2281
                                                                                                                                                                                                                                               2301
                                                                                                                                                                                                                                                              2161
                                                                                                                                                                                                                                                                                                         2181
                                                                                                                                                                                                                                                                                                                         2041
                                                                                                                                                                                                                                                                                                                                                                                                    2001
                       Human
                                                                                                                                                      2481
                                                                                                                                                                     2341
                                                                                                                                                                                                                                2221
                                                                                                                                                                                                                                                                            2241
                                                                                                                                                                                                                                                                                                                                        2121
                                                                                                                                                                                                                                                                                                                                                                      2061
                                                                                                                                                                   ACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGGGGACCAGGATGCTGGGGCCT
                                                                                                                                                                                                                                                                                          CGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAĞCTGGGAGAGGTACCAGCTGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                  GCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACACCCTGGGCACGGTCCACACACCCACAGCGCCCACTTCAAGGTGGATCTGGATGTAGCAG
                                                                                                        TTCCCTCTTTCCTGTGCCAGGACTCTCTTTCTTCCACTACC
                                                                                                                                      CAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTGACGAAG
                                                                                                                                                                                                                                                                    CAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTGACGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAGGAGC
                      endometrial cancer related gene,
                                                                   standard;
                                                                   ВP
                       AOC2
                                                                                                                       2581
                                                                                                                                        2460
                                                                                                                                                                                                                                                              2220
                                                                                                                                                                                                                                                                                                         2240
                                                                                                                                                                                                                                                                                                                                                                                      1980
                                                                                                                                                                                                                                                                                                                                                                                                                   1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1880
```

Human; ds; gene; DNA microarray; p

protein microarray endometrial cancer;

differential

HOMO

sapiens

```
밁
                                                                                                              δÃ
                                                                                                                                           В
                                                                                                                                                                 δõ
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                 δ
                             밁
                                                      Š
                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to diagnosing endometrial cancer in a subject suspected of having endometrial cancer comprising determining the expression of a set of nucleic acid molecules or expression products in an endometrial sample suspected of being cancerous, where the set of concleic acid molecules comprises at least 2 nucleic acid molecules comprises at least 2 nucleic acid molecules sequences as given in the specification. The nucleic acids are used as an array of at least 2 of the 50 nucleic acids bound to a solid substrate. Also included is a solid-phase CC protein microarray comprising at least 2 antibodies or its antigen binding fragments, that specifically bind at least 2 different CC polypeptides from the 50 fully defined sequences as given in the specification, fixed to a solid substrate. The methods and arrays are useful for the diagnosis of endometrial cancer, selecting and monitoring treatment regimes and identification of lead compounds useful for the creatment of endometrial cancer. The present sequence is one of 50 genes differentially expressed between cancerous and non-cancerous
                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 1545; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Diagnosing endometrial cancer comprises determining expression nucleic acid molecules or expression products that are different expressed in normal and malignant endometrium -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31-JUL-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200209573-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (BGHM ) BRIGHAM & WOMENS HOSPITAL
                             315
                                                                                     255
                                                                                                                 401
                                                                                                                                            195
                                                                                                                                                                       341
                                                                                                                                                                                                   135
                                                                                                                                                                                                                               281
                                                                                                                                                                                                                                                                                    221
                                                                                                                                                                                                                                                                                                                             161 ATGAACCAGAAGACAATCCTCGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTG
  521
                                                         461
                                                                                                                                                                                                                                                           87
                                                                                                                                                                                                                                                                                                                 27
                                                                                                                                          2002-179967/23.
DB; AAU84261.
                          CCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTCGGACAACTGTGTCTTCTCAGTGGAG
                                                                                                                                                                                                                  TGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACCCCTGGCCAGAGCCAGCTGTTT
                                                                                                                                                                                                                                                      GCCTATGTTTTGCTGACCAGCCCAGGTGGTT------CCAGCCAGCCTCCCCAC
GCAGACCTGAGCCGAGAGGAGCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGG
                                                                                                                                                                                                 ATGCATCTCAAGATAGTCCTGGCGTTCCTGGCACTGTCCCTCATTACCATCTTTGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Page 37-38; 233pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                 2572 BP;
                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-221735P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2001WO-US24104
                                                                                                                                                                                                                                                                                                                                                                                                                              538 A;
                                                                                                                                                                                                                                                                                                                                                                                     25.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                               736 C; 669
                                                                                                                                                                                                                                                                                                                                              Score 1017.8; DB 24; Pred. No. 9.7e-255; Indels 105; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                               629
                                                                                                                                                                                                                                                                                                                                                                                                                               T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        differentially
                                                      520
                                                                                  314
                                                                                                               460
                                                                                                                                                                       400
                                                                                                                                                                                                   194
                                                                                                                                                                                                                                                                                                                86
                                                                                                                                           254
                                                                                                                                                                                                                                                                                                                                                                       4:
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
            Š
                                         밁
                                                                Š
                                                                                            멍
                                                                                                                      Ş
                                                                                                                                                 멍
                                                                                                                                                                       Ş
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                           1149
                                                                                                                                                                                                                                                                                                                                                                      1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               435
                                                                                                                                                                                                                                                                                                                                                                                                                          969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         729
                                                                                                                                                                                                                                                                                                                                                                                                                       ATCCAGAAGGTGTTCTATCAAGGCCGCTACTACGACAGCCTGGCCCAGCCTGGAGGCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACCACGTGGGCTTGGAGCTGCTAGTGAACCACAAGGCCCTTGACCCTGCCCCGCTGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGATGATCTTCAACAGAGAGCTGCCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCTGCTTCCAAGAGTACCTGGACATAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGTGGTGGGCCACTGCCTCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATGAGATAAGCCTCCAAGAGAGCCTTGGCCATCTATGGTGGAAATTCCCCCAGCAGCAATG
                                                                                                                                                                                                                                                                                                                                                                  GGGGACCGGGCCACCTGGTTTGGCCTCTACTACAACATCTCGGGCGCCTGGGTTCTTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGTGGTGGGGCCCCCTCACCCCCTCGTACATGCGGGATGTGACTGTGGAGCGTCAC
CCCAGTGGGGCCATAGAAATACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTC
                                                     CGGCGACACCCACTCAGATCTCTACTCGCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTG
                                                                                                                                                                          GCCCCCAAGACAATACGTGATGCCTTTTGTGTGTTTGAACAGAACCAGGGCCTCCCCCTG
                                                                                                                                                                                                      GGAGTGGACTGCCCCTATCAAGCCACGATGGTGGACATCCATATATTAGTGGGCAAAGGG
                                                                                                                                                                                                                      GGGGTGGACTGCCCCTACTTGGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAG
                                                                                                                                                                                                                                                           CTGACTCGCTATTTGGATAGCAGCTTTGGACTCGGCCGTAACAGCCGAGGCTTGGTGCGG
                                                                                                                                                                                                                                                                         ACGACCCGCTATGTGGATGGATGGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGT
                                                                                                                                                                                                                                                                                                                 TATGAAGTCAGTGTCCAGGAGTGTGTATCTATCTATGGTGCCGATTCACCCAAGACGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTAAGTCTGGCCGGTTGGAAGTGGTTAGAGTCCCTCTACCTCCACCAAATGGAGCTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCCAGCAGGTCTTCTACCTTGGGCACTACTATGCAGACTTGGGCCAGTTGGAACGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACCCCGTGGGGCTGGAGCTACTGGACCACAGGGCCCTGGACCCTGCCCACTGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGGAACGAACTACCTGGATTGGCCTCTACCATAACATCTCAGGGGTTGGTCTTTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCAACTACAATGGCTCTACCCTGGCAGCTGTGCATGCCACCCCTCGGGGCTTGCGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACAAGCACCGGGGACCGGACCTGGTGACCAATGACCACGGCTCCCCCGTGGTCTGCAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGCATCTGAAAGATGTGGAGCTACCCAAGGC-----ACCCATCTTCCTGTCGTCCACC
                                        GTGGTCAGGTCTGTGTCATCTGTGGGCAACTATGACTACATTTGGGACTTTGTGTTGTAC
                                                                                             CGAAGGCACCACAATTACCTTCAAAATCATTTCTATGGTGGTTTGGCCAGCTCAGCCCTT
                                                                                                                                                 GCAGTCCAGCTGCTTCCAGGGGCTGTGTGTGTATTTGAGGAAGCCCAGGGACTGCCCCTT
                                                                                                                        1540
                                                                                                                                                                            1480
                                                                                                                                                                                                                                                           1208
                                                                                                                                                                                                                                                                                      1360
                                                                                                                                                                                                                                                                                                                 1148
                                                                                                                                                                                                                                                                                                                                                                    1088
                                                                                                                                                                                                                                                                                                                                                                                               1240
                                                                                                                                                                                                                                                                                                                                                                                                                          1028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        640
               1660
                                                                    1600
                                                                                                                                                    1328
                                                                                                                                                                                                      1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  434
```

```
RESULT 5
ABK63566
ID ABK6
XX
AC ABK6
XX
DE Rat
XX
R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1661 TTTGGTGCTACTGGG-----AAGTACGGGAACCAAGTGTCAGAGCACACCCTGGGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1449 CCAAATGGGGCACTTGAAGGGCGGGTCCATGCCACGGGTTATATCAACACAGCTTTCCTG 1508
                                                                Rat; ss; hepatotoxin; expdifferential expression;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2148
      Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                 ABK63566 standard; cDNA; 1051 BP
                                                                                                                                                                                                                                   18-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATTTCAGTGACTTCATCAACAATGAGACCATTGCTGGAAAGGATTTGGTGGCCCTGGGTG 2194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCCACACCCACAGCGCCCACTTCAAGGTGGATCTGGATGTAGCAGGACTGGAGAACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AACGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTGACGAAGACCCCTCCTTCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACAGCCAGCTTCCTGCACATTCCCCATGCCGAGGACATCCCAAACACAGTGACTCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCTTTGCTGACTTCATCAACAATGAAACCCTCTTAGGAGAGGATCTGGTGGCTTGGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGGAGGAGCCCAGTAGCAGCGTTTTCAATCAGAATGACCCTTGGGCCCCCACTGTG 2134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACCCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGGGAAGCCCCCTACCCCGCTACCTCTACCTGGCTAGCAACCAGACTAATGCGTGGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGGAAGCGCCACCCTCGCTACCTGTACCTGGCCAGCAACCACAGCAACAAGTGGGGT 1954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGGATGGAGGAGCAGGCCGCCTTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGGTAGCTGAAGACGTGGTGTTTAAACCTGTGGCTGCCCCCTGGAACCCGGAGCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCTTCT 2441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGGCCTGCCTCCCCGACCTGGCAGCCTGTGTCCCCGGACTTACCCCCTTTCTCTTACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTAGCTTGCCTGCCCAGGCTGCTGCCTGTGCCCCGACCTCCCTGCCTTCTCCCACGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTGCCGACTCCATCTACTTCCGAGGGGACCAGGATGCTGGGGCCCTGCGAGGTCAACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGAGGAGTCACAGAGCAGTAGCATCTATCACCAGAATGACATCTGGACACCCCACAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCAGCGCGGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTACAGCGCCCACAGCTGACTCGGCAGGTCCTGGGAAAGGAGGACCTGACAGCTTTTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGCACACACATGCCTTCCACTTCAAGCTGGACCTGGATGTGGCAGGGCCTGAAAAACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAGGGGGAGAGGAGGCCTCCTCTTTGGGAACCGTGTGGGGGAAAGAGTGCTGGGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACAGAGTTGGCTTCTTCGACCCTATAACTTCTTTGATGAGGACCCCTCCATCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTCCTAACACAGTGACTGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCCCTGGCAGTGTACTTTGAGAAGGGCCAGGATGCTGGGCTCTGCAGCATCAATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2214
                                                                                                                                                               differentially expressed in response to
                                                                                                                                                                                                                             (first entry)
                                                                    expressed sequence tag; EST; drug screening
on; centrilobular necrosis; steatosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----TACCAGCTTGTGGTGACCCAGAGAAAG
                                                                                                                                                               മ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ........
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1820
```

```
The invention relates to methods for predicting toxic effects of compounds or the progression of these toxic effects by determining the cyclobal changes in gene expression in tissues or cells exposed to the comparing these to gene expression in unexposed tissues or cells. Also included are methods of predicting at least one toxic effect of a compound or progression of a toxic effect, preferably the centrolity of a compound, comprising detecting the level of centrolity of a compound, comprising detecting the level of the patotoxicity of a compound, comprising detecting the level of the patotoxicity of a toxic effect, preferably the compound of two or centrolity of a tribute of at least one toxic effect or progression of the genes is indicative of at least one toxic effect or progression of the genes is indicative of at least one toxic effect or progression.

Compression in a tissue or cell sample exposed to the compound modulates the toxic response and predict cellular pathways that a compound modulates the conformation in the specification, a computer system comprising a database containing information identifying the sectification, a computer system comprising at least two genes listed in the specification, a computer conformation level in a tissue or cell sample exposed to a hepatotoxin of a dentifying the expression level in a tissue or cell of at least one gene conformation in the specification. The method is useful for elucidating global changes in gene expression and for identifying toxicity markers in the specification of a dentifying toxicity markers in the specification of a dentifying toxicity markers in the specification of identifying toxicity markers for the gene and toxicity markers for the gene expression information may be used as diagnostic markers for the probability expression in resp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31-JUL-2000;
02-NOV-2000;
11-MAY-2001;
15-MAY-2001;
22-MAY-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 1; Seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unexposed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Predicting toxic effects of compounds or the progression of these toxic effects by determining the changes in gene expression in tissues or cells exposed to the toxin and comparing these to gene expression in unexposed tissues or cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2002-241625/29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-JUN-2001;
13-JUN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-JUL-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200210453-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GENE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2001US-290029P.
2001US-290645P.
2001US-292336P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ID No 1473; 239pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOGIC INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2001US-298884P.
2001US-303459P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2001WO-US23872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001US-295798P.
2001US-297457P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Porter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-222040P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₩,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Johnson KR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Castle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ΑL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Elashoff
```

Sequence 1051 BP; 200 A; 318 C; 291 Ġ; 232 T; 10 other;

differentially expressed in response to a hepatotoxic agent.

```
ρ
                                      밁
                                                            Ş
                                                                                        Matches
                                                                                                                Query Match
             201
                                      66
TCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGGCAGGGGTGGAGATGGGGGTG 260
                                    CTGTCCAGCCTCAAGGAACAATGACCCAGAAGACCACCCTAGTGCTCCTCGCCCTGGCTG 125
                                                              CTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCTCGTGCTCCTCATTCTGGCCG 200
                                                                                                     Similarity
                                                                                        Conservative
                                                                                                   17.7%;
82.3%;
                                                                                                   Score 714.4;
Pred. No. 1.1
                                                                                        Mismatches
                                                                                                   1.1e-3
                                                                                                     DB 24;
le-173;
                                                                                        169;
                                                                                                                 Length
                                                                                       0;
                                                                                       Gaps
```

밁

Š 밁 ρy В

δÕ В ρ

Human; cancer; colon; breast; ovary; oesophagus; kidney; t stomach; lung; prostate; pancreas; carcinoma; antitumour; cytostatic; gene therapy; antineoplastic; Wilm's tumour; a

adenocarcinoma; thyroid; cancerous;

```
RESULT 6
ABL62445
ID ABL6
XX
AC ABL6
A
                                                                                                                                                                                                                                                                                                   1101
                        Colon adenocarcinoma
                                                                  15-MAY-2002
                                                                                                            ABL62445;
                                                                                                                                                  ABL62445
                                                                                                                                                                                                                                                                                                                                                                                     1041
                                                                                                                                                                                                                                                                                                                                                                                                                               906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCAGCCCAACGTGAGTGAGCTGGTGGTGGTGGGCCACTGCCTCACCCCCTCCTACATGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGCTGACGGCTGTGATGCGCT
                                                                                                                                                                                                                                                                             TACAGTTCTATCCCCAAGGCCCCCG
                                                                                                                                                                                                                                                                                                                                      TTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCAAGGCCGCTACTACGACAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGGGCTGGGTTTTACCCTCACCCCATTGGCTTAGAGCTTCTGGTAGATCACAAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCTGCTAGTGAACCACAAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGG
                                                                                                                                                                                                                                                      TGCARTTYCAYCCNGARGGNCCNMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTGTGTCTCTCAGTAGAGTTGCAGCTGCCTGCCAAGGCTGCAGCCCTGGCCCACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCATCACCATCTTCGCTTTGCGTCTTGCTAGCTGGCAGGAGCGGAGATGGGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGATCCTGCCCTGTGGACCATCCAGAAGGTATTCTACCAAGGCCGTTACTATGAGAGTC
                                                                                                                                                  standard;
                                                                (first
                                                                                                                                                  DNA;
                                                              entry)
                        related
                    gene sequence
                                                                                                                                                  ВP
                                                                                                                                                                                                                                                           1050
                                                                                                                                                                                                                                                                                                 1125
                    SEQ
                        IJ
                        NO:782
                                                                                                                                                                                                                                                                                                                                           1025
                                                                                                                                                                                                                                                                                                                                                                                 1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      785
```

Qy

В δÕ B Š ₽ Ş 밁 Q 문 δ 밁 δÃ 밁

밁 Ş 밁 Ş В δ ₽ δÃ 밁

The present invention describes a method (M1) for screening fanti-neoplastic agent. The method involves exposing cells to agent to be tested for anti-neoplastic activity, determining expression of at least one gene (I) of a signature gene set,

j for an
to a chemical
ig a change in
t, where (I)

ä

Screening for anti-neoplastic agent involves exposing cells to a chemical agent to be tested for anti-neoplastic activity, and determining a change in expression of a gene of a signature gene

set

Claim

۲. SEQ

IJ

782;

44pp;

English.

Soppet

2002-188264/24.

T PE,

Augustus Weaver Z

2; 3

Carter

<u>۾</u>

Ebner 72

Endress

ó

S

```
05-JUN-2000)
18-SEP-2000)
18-SEP-2000)
20-SEP-2000)
20-SEP-2000)
20-SEP-2000)
25-SEP-2000)
25-SEP-2000)
25-SEP-2000)
25-SEP-2000)
25-SEP-2000)
25-SEP-2000)
25-SEP-2000)
25-SEP-2000)
25-SEP-2000)
26-SEP-2000)
27-SEP-2000)
28-SEP-2000)
29-SEP-2000)
29-SEP-2000)
20-OCT-2000)
01-OCT-2000)
03-OCT-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cytostatic;
gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-MAY-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200194629
                                                                                                                                                                                                                                                                              (AVAL-) AVALON PHARM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sapiens
                                                                                                                                                                                                                                                                                                                2000US-234507P

2000US-234034P

2000US-234509P

2000US-234567P

2000US-234924P

2000US-235082P

2000US-2355837P

2000US-235637P

2000US-235637P

2000US-235637P

2000US-235637P

2000US-235637P

2000US-235637P

2000US-235637P

2000US-235631P

2000US-235631P

2000US-236034P

2000US-236034P

2000US-236034P

2000US-236034P

2000US-236034P

2000US-237173P

2000US-237173P

2000US-237173P

2000US-237173P

2000US-237173P

2000US-237173P

2000US-237116P

2000US-237116P

2000US-237116P

2000US-237116P

2000US-237116P

2000US-237160P

2000US-237160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001WO-US10838
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
B
                            Š
                                                                    Ъ
                                                                                                   δõ
                                                                                                                                     Дb
                                                                                                                                                                  δ
                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         comprises a sequence (S) selected from 8447 sequences (given in ABL61664 to ABL70110), or is at least 95% identical to (S), where a change in expression is indicative of anti-neoplastic activity. (I) has cytostatic activity and can be used in gene therapy. All can be used for screening an anti-neoplastic agent, and can be used for producing a product which is the data collected with respect to the anti-neoplastic agent as a result of MI, and the data is sufficient to convey the chemical structure and/or properties of the agent. MI can be used in the treatment of cancer such as colon, breast, stomach, lung, thyroid, oesophageal, ovarian, Kidney, prostate or pancreatic cancer, infiltrating lobular cancer, squamous cell carcinoma, neuroendocrine carcinoma, papillary carcinoma and Wilm's tumour.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                         660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      363
                                                                                                                                                                                                                                                                                                                                                     580
                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                       520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         303 CCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGC 362
                                                                                                                                         754
                                                                                                                                                                          900
                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                 640
                                                                                                                                                                                                                                                                                                                   780
                                                                                                                                                                                                              700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1099;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTTCTTTGGCAGGCAACCCCAGCCCAACGTGAGCTGAGCTGGTGGTGGGGGCCACTGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGCCCGGCCCTCGGACAACTGTGTCTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTCCCCGGGACTCTGCCCAGGAAGGCAGGGGTGTTTTCAGACCTAAGCAACCAAGAGC
                                                                                                                                                                                                                                                                                                                                                                        AGCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCCATCTCCACAGCAGGAGTATGCCCTCCTCTACCACACCCTGCAGGAAGCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCCCTGCTACATGCGAGCACTGTCCCCCAGGCCTGGGTACCAGTCCTCCTGGGCATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCCCTCCTACATGCGGGACGTGACTGTGGAGC --- GTCATGGAGGCCCCCTGCCCTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCTTCTTTGGTGACCAGGAGCATCCCAATGTCACCGAGTTTGCTGTGGGGGCCCCTGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGTGCTGAGGTTTCTGGATAAAGGTGAAAGGCATCCTGTGCGGGAAGCCCGTGCCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCACCACGATGGCCAAGAACACGGTGTTTCTCATCGAGATGCTGCTGCCCAAGAAGTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAAGGCAGTGCACAGCTTCCTCTGGTCCAAGAAGGAGCTGAGGCTGCAGCCCTCCAGTA
                              ATGTGGTGCTGATCCCAGACA--
                                                                                                   TGCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATC
                                                                                                                                                                                                                              CCCTGCATCAGTTCTTCCTCAATACCACAGGCTTCTCATTCCAAGACTGCCATGACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCGACGCCCCGTGCTTCCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAG
ACGTGGTGGTCCTGGAGGACCCCGCTGCCTGGGGGCCAAGGGGCATGACAGCACAGAGGAGC
                                                                  ACGGGAAGTTCTATGGGAGCCCAGAGGAACTGGCTCGGAAGTATGCAGATGGAGAGGTGG
                                                                                                                                       TCCTCGTGGATCATGGGAGCACAGATGCTGGGCACTGGGCCGTGGAGCAGGTGTGGTACA
                                                                                                                                                                                                            TTATCATACAGCGCTATGTAGAAGGC----TACTTTCTGCACCCCACTGGGCTGGAGC
                                                                                                                                                                                                                                                                                 GCCTGGCCTTCACCGATGTGGCCCCCCCGGGGTGTGGCCTTCTGGCCAGCGCCGCAGTTGGC
                                                                                                                                                                                                                                                                                                                 ACCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2441 BP; 515 A; 789 C; 684 G; 453 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 422.2;
Pred. No. 4.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rred. No. 4.3e-98;
Mismatches 91P
                                -ATGGCACAGGTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      422
                                1055
                                                                                                                                                                                                                                                                                                                                                                                                                       579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                339
                                                                  873
                                                                                                                                                                                                                                            899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6
```

δõ

CCTGGTCCCTGAAGTCCCCTGTGCCCCCGGGTCCAGCTCC--

```
δÃ
                                                                                                                B
                                                                                                                                             Š
                                                                                                                                                                               밁
                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                             δÕ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1155
                 2106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1234
                                                                                                                1894
                                                                                                                                                                                  1834
                                                                                                                                                                                                                  1926
                                                                                                                                                                                                                                                   1774
                                                                                                                                                                                                                                                                                 1866
                                                                                                                                                                                                                                                                                                                1714
                                                                                                                                                                                                                                                                                                                                                1806
                                                                                                                                                                                                                                                                                                                                                                                 1654
                                                                                                                                                                                                                                                                                                                                                                                                                 1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCCCGCTTGGTCCAGCCCCACGGCCTCGCTTCAGGCTGGAGGGCAACGCTGTGCTCT 1053
ATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCAT---CAACAATGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGA 1685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAATACGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCAACTTCTATGCGGGGCTGAAGGGCCCAGGTGCTGCTGCTGCACAACTTCAACTGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIGAAATGCCCACAGGGGTGCCCCTTCGGCGGCACTTTAATTCCAACTTTAAAGGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGAACAGAACCAGGGCCTCCCCCTGCGGCGACACC -----ACTCAGATCTCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCAGCGTCACTCATGAGTTAGCCCCCGGCATCGACTGCCCGGAGACCGCCACCTTCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCAAGTACACCACGCCCCTGACCCGTGGGGGTGGACTGCCCCTACTTGGCCCACCTACGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCACTTCGGCGGAGAGCGCATTGCCTATGAGGTCAGCGTGCAAGAGGCAGTGGCGCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGAGGCCTTGGCCATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGGCGGCTGGAGCTTTGCCTTCCGGCTGCGCTCCTTCGGGCTGCAGGTCCTGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTCACTGTGGACTTTCTCCTTTTGGCCTCGGAGCATTCAGTGGCCCAAGGATCTTTGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -CCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGGAAGTCGAGTGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCCTTCAGCTGGGAGA
                                                                                                                                                                                  TTACCAGCCCCCAGGAGAACCCCTGGGGCCACAAGCGCAGCTACCGCCTGCAGATCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                 ATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTCAAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACAATTATGATTACATTTGGGACTTTATCTTCTACCCCAACGGGGTGATGGAGGCCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCACTACTTTGGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCACCTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTGCCACTTCCTTTGGAGTCCCAGGCCCCCAAGACAATACGTGATGCCTTTTGTGTGT 1454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGGAGGACACACCTGCAGGCATGCAGACCAAGTACCTCGATGTCGGCTGGGGCCTGG
                                                                              GGTACCAGCTGGCTGTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGCAGCGTTTTCA
                                                                                                                CCATGGCCGACCAGGTGCTGCCCCAGGCTGGCAGGAGGAGCAGGCCATCACCTGGGCAA
                                                                                                                                                                                                                                                   ACTCCTGGGAGCGCCAGGCGGCCTTCCGCTTCAAAAGGAAGCTGCCTAAGTACCTGCTCT
                                                                                                                                                                                                                                                                      TGGAGATGGAGGAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACC
                                                                                                                                                                                                                                                                                                                                                TGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGGCTGCAGGTGACCCGGAAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                 ACCTGGATGTGGCAGGCACCAAGAACAGCTTCCAGACACTGCAGATGAAGCTAGAAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCATGCCACTGGCTACGTCCACGCCACCTTCTACACCCCCGAGGGGCTGCGCCACGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACACTTTCCACTACTATGATGCCGATGACCCGGTCCATTATCCCCGAGCCCTCTGCCTCT
                                                 GGTACCCCCTGGCAGTGACCAAGTACCGGGAGTCGGAGCTGTGCAGCAGCAGCATCTACC
                                                                                                                                                                                                                 TGGCCAGCAACCACAGCAACAAGTGGGGTCACCCCGGGGCTACCGCATCCAGATGCTCA
                                                                                                                                                                                                                                                                                                                  TCACCAACCCCTGGAGCCCAAGACACCGCGTGGTCCAGCCAACTCTGGAGCAGACGCAGT
                                                                                                                                                                                                                                                                                                                                                1865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1173
                                                   2013
                                                                                                                   1953
                                                                                                                                                  2045
                                                                                                                                                                                  1893
                                                                                                                                                                                                                                                   1833
                                                                                                                                                                                                                                                                                                                  1773
                                                                                                                                                                                                                                                                                                                                                                                                                 1805
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1214
```

```
RABUGUT 7
RABLGT 7
RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                   20-SEP-2000

22-SEP-2000

22-SEP-2000

25-SEP-2000

25-SEP-2000

25-SEP-2000

25-SEP-2000

26-SEP-2000

27-SEP-2000

27-SEP-2000

27-SEP-2000

27-SEP-2000

27-SEP-2000

27-SEP-2000

27-SEP-2000

27-SEP-2000

27-SEP-2000

28-SEP-2000

28-SEP-2000

28-SEP-2000

28-SEP-2000

28-SEP-2000

29-SEP-2000

20-SEP-2000

20-SE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human; cancer; colon; breast; ovary; oesophagus; kidney; thyroid;
stomach; lung; prostate; pancreas; carcinoma; antitumour; cancerous;
cytostatic; gene therapy; antineoplastic; Wilm's tumour; adenocarcinoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2194 TCAACTTCTTCCCAGAGGACCCCTCCCTGGCATCCAGAGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABL67675 standard; DNA; 2441 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oesophagus cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABL67675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-JUN-2000;
05-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200194629-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-SEP-2000;
20-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-MAY-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGAGGACATTCCCAACACAGCCACACCTGGGAACTCCGTGGGCTTCCTGCTCCGGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGAGGACATTCCTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACATTGAAAATGAGGACCTGGTGGCCTGGGTGACGGTGGGCTTCCTGCACATCCCCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCAGAACGACCCCTGGCACCCGCCCGTGGTCTTTGAGCAGTTTCTTCACAACAACGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001WO-US10838
                                                                                                                                                                                                                                                                                                                                                                    2000US-236033P.
2000US-236034P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-234034P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-234009P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-234567P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-234052P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NO:6012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2073
```

Query Match
Best Local Similarity
Matches 1099; Conserv

Conservative

0,

Score 422.2; DB 2 Pred. No. 4.3e-98; D; Mismatches 918

918;

Indels

66;

Gaps

6

DB 24; Length

10.5%;

303 CCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTTGCAGACCTGAGCCGAGAGGAGGAGC 362

CCTCCCCGGGGACTCTGCCCAGGAAGGCAGGGGTGTTTTCAGACCTAAGCAACCAAGAGC 219

TGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCCAGGGCTGGTGGATGCAGCCC 422

TGAAGGCAGTGCACAGCTTCCTCTGGTCCAAGAAGGAGCTGAGGCTGCAGCCCTCCAGTA

279

160

423 220 363

AGGCCCGGCCCTCGGACAACTGTGTCTTCTCAGTGGAGTTGCCAGCTGCCTCCCAAGGCTG

ATGTGCTGAGGTTTCTGGATAAAGGTGAAAGGCATCCTGTGCGGGAAGCCCGTGCCGTCA CAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCCCCCTGCCCGGGAGGCACTGGCCATCG CCACCACCATGGCCAAGAACACCGTGTTTCTCATCGAGATGCTGCTGCCCAAGAAGTACC 339

542

399

602

TCTTCTTTEGCAGGCAACCCCAGCCCAACGTGAGTGAGCTGGTGGTGGGGCCACTGCCTC

TCTTCTTTGGTGACCAGGAGCATCCCAATGTCACCGAGTTTGCTGTGGGGCCCCTGCCAG

280

Ş B 8 밁 Ş В Š 밁 QΥ В Š 망 20

660 460

ACCGACGCCCCGTGCTGCTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAG

GGCCCATCTCCACAGCAGAGTATGCCCTCCTCTACCACACCCTGCAGGAAGCCACCAAGC

ACCCCTCCTACATGCGGGACGTGACTGTGGAGC···GTCATGGAGGCCCCCTGCCCTATC

GGCCCTGCTACATGCGAGCACTGTCCCCCCAGGCCTGGGTACCAGTCCTCCTGGGCATCGA

519 659 459

```
The present invention describes a method (M1) for screening for an anti-neoplastic agent. The method involves exposing cells to a chemical agent to be tested for anti-neoplastic activity, determining a change in cexpression of at least one gene (I) of a signature gene set, where (I) comprises a sequence (S) selected from 8447 sequences (given in ABL6164 to ABL70110), or is at least 95% identical to (S), where a change in cexpression is indicative of anti-neoplastic activity. (I) has cytostatic activity and can be used in gene therapy. All can be used for screening can anti-neoplastic agent, and can be used for producting a product which is the data collected with respect to the anti-neoplastic agent as a cresult of M1, and the data is sufficient to convey the chemical constructure and/or properties of the agent. M1 can be used in the treatment of cancer such as colon, breast, stomach, lung, thyroid, coseophageal, ovarian, kidney, prostate or pancreatic cancer, infiltrating lobular cancer, squamous cell carcinoma, neuroendocrine carcinoma, papillary carcinoma and Wilm's tumour.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-OCT-2000;
03-OCT-2000;
03-OCT-2000;
03-OCT-2000;
03-OCT-2000;
01-NOV-2000;
01-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Young PE,
Soppet DR,
                                                                                                                                                                                                                                                                                                                                                             Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                          Screening for anti-neoplastic agent involves exposing cells to a chemical agent to be tested for anti-neoplastic activity, and determining a change in expression of a gene of a signature gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-188264/24.
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Soppet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (AVAL-) AVALON PHARM
                                                                                                                                                                                                                                                                                                                                                              SEQ
2441 BP; 515 A; 789 C; 684 G; 453 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Augustus M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; 2000US-237425P.
; 2000US-237598P.
; 2000US-237604P.
; 2000US-237608P.
; 2000US-237608P.
; 2000US-244867P.
; 2000US-244867P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Weaver
                                                                                                                                                                                                                                                                                                                                                             ID 6012;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27
                                                                                                                                                                                                                                                                                                                                                           44pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Carter KC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ebner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Endress
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Horrigan
                                                                                                                                                                                                                                                                                                                                                                                                  set
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŝ
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
   Š
                               В
                                                       Q
                                                                                          В
                                                                                                                     Qy
                                                                                                                                                밁
                                                                                                                                                                            Ş
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                           Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1020
    1746
                                                                                                                                                      1474
                                                                                                                                                                                                                                                                                                                                       1294
                                                                                                                                                                                                                                                                                                                                                                                                   1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCCAAGGATCTTTGACG 1214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -CCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGGAAGTCGAGTGGCCT 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGGGAAGTTCTATGGGAGCCCAGAGGAACTGGCTCGGAAGTATGCAGATGGAGAGGTGG
ATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCA 1805
                                                                                                          TCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGA 1685
                                                                                                                                                                            TCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAATACGAT
                                                                                                                                                                                                                                   CGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTCGTCAGATCTATGTCCACCTTGC
                                                                                                                                                                                                                                                                                                                                                                                                GCAGCGTCACTCATGAGTTAGCCCCCGGCATCGACTGCCCGGAGACCGCCACCTTCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                              GCAAGTACACCACGCCCTGACCCGTGGGGTGGACTGCCCCTACTTGGCCACCTACGTGG 1394
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGAGGACACACCTGCAGGCATGCAGACCAAGTACCTCGATGTCGGCTGGGGCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGGTCCCTGAAGTCCCCTGTGCCCCCGGGTCCAGCTCC---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGTGGTGGTCCTGGAGGACCCGCTGCCTGGGGGGCAAGGGGCATGACAGCACAGAGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGTGGTGCTGATCCCAGACA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCTCGTGGATCATGGGAGCACAGATGCTGGGCCACTGGGCCGTGGAGCAGGTGTGGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGGCCTCTACTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACCACGTGGGCTTGGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCTGCATCAGTTCTTCCTCAATACCACAGGCTTCTCATTCCAAGACTGCCATGACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGA
                            ACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTCAAGGTGG 1745
                                                                                                                                                                                                                                                                      TIGAAATGCCCACAGGGGTGCCCCTTCGGCGGCACTTTAATTCCAACTTTAAAGGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCCCGCTTGGTCCAGCCCCACGGCCCTCGCTTCAGGCTGGAGGGCAACGCTGTGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTATCATACAGCGCTATGTAGAAGGC----TACTTTCTGCACCCCACTGGGCTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCTGGCCTTCACCGATGTGGCCCCCCCGGGGTGTGGCCTTCTGGCCAGCGCCGCAGTTGGC
                                                                                        TGCATGCCACTGGCTACGTCCACGCCACCTTCTACACCCCCGAGGGGCTGCGCCACGGCA
                                                                                                                                                   ACAATTATGATTACATTTGGGACTTTATCTTCTACCCCAACGGGGTGATGGAGGCCAAGA
                                                                                                                                                                                                             TCAACTTCTATGCGGGGCTGAAGGGCCAGGTGCTGGTGCTGCGGACAACTTCAACTGTCT
                                                                                                                                                                                                                                                                                                      TTGAACAGAACCAGGGCCTCCCCCTGCGGCGACACC-----ACTCAGATCTCTACT
                                                                                                                                                                                                                                                                                                                                    ACACTTTCCACTACTATGATGCCGATGACCCGGTCCATTATCCCCGAGCCCTCTGCCTCT
                                                                                                                                                                                                                                                                                                                                                                ACTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGATGCCTTTTGTGTGT 1454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGGCGGCTGGAGCTTTGCCTTCCGGCTGCGCTCCTTCGGGCTGCAGGTCCTGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -------ATGGCACAGGTGGGT 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           839
                                                                                                                                                                                                                                        1565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         639
                              1653
                                                                                                                                                                                                                                                                        1413
                                                                                                                                                                                                                                                                                                                                                                                                1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     779
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ŋ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1654
       New nucleic acid that is a 5' expressed sequence tag (5' EST) for obtaining cDNAs and genomic DNAs that correspond to 5'ESTs and for diagnostic, forensic, gene therapy and chromosome mapping procedures
                                                                                                                                                                                                                      Homo
                                                                                                                                                                                                                                                                                                                                                  AAC04285 standard; cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                             2194
                                                                                                                                                                                                                                                                                                                                                                                                                                   2283
                                                                                                                                                                                                                                                                                                                                                                                                                                                         2134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1806
                                                                            Dumas Milne Edwards
                                                                                                   (GEST ) GENSET
                                                                                                                          26-FEB-1999;
                                                                                                                                                21-FEB-2000; 2000EP-0200610
                                                                                                                                                                       06-SEP-2000
                                                                                                                                                                                               EP1033401-A2
                                                                                                                                                                                                                                                                               Human secreted
                                                                                                                                                                                                                                                                                                      06-OCT-2000
                                                                                                                                                                                                                    sapiens
                                                                                                                                                                                                                                        therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCAT---CAACAATGAGA 2162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTACCCCCTGGCAGTGACCAAGTACCGGGAGTCGGAGCTGTGCAGCAGCAGCATCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGTACCAGCTGGCTGTGACCCAGCGGAAGGAAGGAGGCCCAGTAGCAGCAGCGTTTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCATGGCCGACCAGGTGCTGCCCCCAGGCTGGCAGGAGGAGCAGGCCATCACCTGGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTGGGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTACCAGCCCCCAGGAGAACCCCTGGGGCCACAAGCGCAGCTACCGCCTGCAGATCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGGCTGCAGGTGACCCGGAAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                             TCAACTTCTTCCCAGAGGACCCCTCCCTGGCATCCAGAGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                           ATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGAGGACATTCCTAACACAGTGACTGTGGGGGAACGGCGTGGGCTTCTTCCTCCGACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACATTGAAAATGAGGACCTGGTGGCCTGGGTGACGGTGGGCTTCCTGCACATCCCCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGCCAGCAACCACAGCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCTCA 1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTCCTGGGAGCGCCAGGCGGCCTTCCGCTTCAAAAGGAAGCTGCCTAAGTACCTGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCACCAACCCCTGGAGCCCAAGACACCGCGTGGTCCAGCCAACTCTGGAGCAGACGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCAGAACGACCCCTGGCACCCGCCCGTGGTCTTTGAGCAGTTTCTTCACAACAACGAGA
                                                      2000-500381/45
                                                                                                                                                                                                                                                        υ
                                                                                                                                                                                                                                                      EST;
                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                            chromosome
                                                                                                                                                                                                                                                                              protein 5' EST,
                                                                                                                          99US-0122487.
                                                                            Ĺ
                                                                                                                                                                                                                                                                                                      entry)
                                                                             Duclert
                                                                                                                                                                                                                                          sequence mapping;
                                                                                                                                                                                                                                                                                                                                                    401
                                                                                                                                                                                                                                                                                                                                                    ₽P
                                                                                                                                                                                                                                                                              SEQ ID
                                                                            Þ
                                                                                                                                                                                                                                            tag; secreted ss.
                                                                             Giordano
                                                                                                                                                                                                                                                                               NO:
                                                                             ij
                                                                                                                                                                                                                                                      protein;
                                                                                                                                                                                                                                                                                                                                                                                                             2236
                                                                                                                                                                                                                                                                                                                                                                                                                                  2325
                                                                                                                                                                                                                                                        cDNA isolation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1865
                                                                                                                                                                                                                                                                                                                                                                                                                                                         2193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1713
```

```
RRSULT 9
AAZ335S1
ID AAZ33
XX AZ3
AZ AZ3
XX AZ3
XX BAC AAZ3
XX BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present sequence is one of a large number of 5' ESTs derived from cmRNAs encoding secreted proteins. No ORF has yet been conclusively identified within the present sequence. The 5' ESTs were prepared from total human RNAs or polyA+ RNAs derived from 30 different tissues. EST sequences usually correspond mainly to the 3' untranslated region (UTR) of the mRNA because they are often obtained from oligo-dT primed cDNA ilbraries. Such ESTs are not well suited for isolating cDNA sequences derived from the 5' ends of mRNAs and even in those cases where longer CDNA sequences have been obtained, the full 5' UTR is rarely included. 5' ESTs are derived from mRNAs with intact 5' ends and can therefore be used to obtain full length cDNAs and genomic DNAs. 5' ESTs are also used in diagnostic, forensic, gene therapy and chromosome mapping procedures. They are used to obtain upstream regulatory sequences and to design cervires and secretion vectors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity Matches 377; Conserva
                                                                                                                                                                                                                                                      Expressed sequence medicaments; gene t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 1;
                             20-MAR-1998;
                                                                                                                                              DE19813835-AJ
                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                            Human breast tumour-associated EST
                                                                                                                                                                                                                                                                                                                                                                                                       08-DEC-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAZ33582 standard; cDNA; 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 401 BP; 69 A; 137 C; 103 G; 91 T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 GTCCTTCCCACCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCCCCCACCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCTGCTGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGA 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGGGGTGGAGATGGGGGTGAACCCAGCCAGCCTTCCCCATTGCCCCTCTGTATCTCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGGGGTGGAGATGGGGGTGAACCCAGCCAGCCATTGCCCATTGCCCCTCTGTATCTCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCCCCACCCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCCTTCCCACCCTTAGTCCCAGGCATCTGACTACCGGGAACCTCAGCCAGAGTCCGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTGACGGCTGTGATGCGC 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCCCAGCCTTGNACACACCCTGGCCAGAGCCAGCTGTTTGCAGA-CTGAGCCGAGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ij
                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                             98DE-1013835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8360;
                                                                                                                                                                                                                                                         therapy;
                                                                                                                                                                                                                                                                                    tag;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7lpp + CD-ROM; English
                                                                                                                                                                                                                                                                                    EST;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 366; DB 21;
Pred. No. 4.8e-84;
D; Mismatches 1
                                                                                                                                                                                                                                                                                 human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     βP
                                                                                                                                                                                                                                                                                    breast;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 21; Length 401;
                                                                                                                                                                                                                                                                                    cancer; cytostatic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1;
```

```
RESULT 10
AAS69129
ID AAS69
XX AAS69
AC AAS69
XC AAS69
XX 13-FE
XX DNA e
XX Human
KW food
XX Homo
XX Homo
XX Homo
XX WO200
PN WO200
PN 11-00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 7.9%;
Best Local Similarity 99.7%;
Matches 321; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This invention describes novel human nucleic acid sequences from normal breast tissue which have cytostatic activity. The nucleic acid sequences can be used to produce and isolate full-length gene sequences. They can be used to express proteins, which can be used as tools to find an activity against breast cancer. The sequences can be used in sense or antisense form. They are especially useful for medicaments for gene therapy to treat breast cancer and for treating illnesses associated with fat metabolism. AAZ33541-Z33610 represent expressed sequence tags described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 360 BP; 119 A; 63 C; 81 G; 97 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 3; 130; 206pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human nucleic acid tissue, useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1999-528979/45
                                                                                                                                                                                                                                                                                                                                                                                 3947
                                                                                                                                                                                                                                                                                                                                                                                                                                        3887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Specht T, Hinzmann
                                          WO200175067-A2
                                                                                               Human; chromosome mapping; gene mapping; gene therapy; forensic
food supplement; medical imaging; diagnostic; genetic disorder;
                                                                                                                                        DNA encoding novel human diagnostic protein #4933
                                                                                                                                                                     13-FEB-2002
                                                                                                                                                                                                 AAS69129;
                                                                                                                                                                                                                            AAS69129 standard;
                                                                   Homo sapiens
                                                                                             food supplement;
                                                                                                                                                                                                                                                                                                 337
                                                                                                                                                                                                                                                                                                                                                     277
                                                                                                                                                                                                                                                                                                                                                                                                             217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                37
                                                                                                                                                                                                                                                                                                                                                     AGGAGTAGAATATAAACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACA 3886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGGTGAAAAAGGCAAGACCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTTCAGAA 3826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACAATAGTATGCAGCTAAAAAATAATTGTATGTCTTTATATACTCTAATATGTAATAATCTT 3766
                                                                                                                                                                                                                                                                                                                            AAACAATAAATGGGCCCAAAAA 4028
                                                                                                                                                                                                                                                                                                                                                                                                            CTGATTACTTTTGGGAGGGGAACCAGTAGGTTGAGGACAGGAGAGGGGAAGGGTCTTAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGATTACTTTTGGGAGGGGAACCAGTAGGTTGAGGACAGGAGAGGGGAAGGGTCTTAACA 3946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGGTGAAAAAGGCAAGCCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTCAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACAATAGTATGCAGCTAAAAAATAATTGTATGTCTTTATATACTAATATGTAATAATCTT
                                                                                                                                                                                                                                                                                                 AAACAATAAATGGGCCCAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGAGTAGAATATAAACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACA
                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98DE-1013835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GES GENOMFORSCHUNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequences and
breast cancer
                                                                                                                                                                                                                            CDNA; 1545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Schmitt A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 320.4; DB 20; Pred. No. 2.6e-72;
                                                                                                                                                                                                                            ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MBH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pilarsky
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.6e-72;
1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      products
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pahl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          normal
                                                                                                                 forensic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rosenthal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          breast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                  SS
                                                                                                                                                                                                                                                                                                                                                                                 4006
                                                                                                                                                                                                                                                                                                                                                                                                             276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96
                                                                                                                                                                                                                                                                                                                                                        336
```

11-OCT-2001

```
밁
                              Ş
                                                              밁
                                                                                            Š
                                                                                                                              밁
                                                                                                                                                         δÃ
                                                                                                                                                                                             B
                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CC polymerase chain reaction (PCR) primers, oligomers, and for chromosome CC and gene mapping, and in recombinant production of (II). The CC polynucleotides are also used in diagnostics as expressed sequence tags CC for identifying expressed genes. (I) is useful in gene therapy techniques to restore normal activity of (II) or to treat disease states involving CC (II). (II) is useful for generating antibodies against it, detecting or Quantitating a polypeptide in tissue, as molecular weight markers and as CC a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (I) and (II) are useful for treating CC disorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in CC diagnostics, forensics, gene mapping, identification of mutations CC responsible for genetic disorders or other traits to assess blodiversity and to produce other types of data and products dependent on DNA and CC diagnostics. AAS64197-AAS94564 represent novel human CC diagnostic coding sequences of the invention.

CC Note: The sequence data for this patent did not appear in the printed consists obtained in electronic format directly from WIPO at the invention.
                                                                                                                                                                                                                                                                                                                                                                                           Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                           1457
                                1757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess biodiversity
1231
                                                                                                                                                                                              1051
                                                                                                                                                                                                                             1577
                                                                                                                                                                                                                                                                                           1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-MAR-2000;
23-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30-MAR-2001; 2001WO-US08631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                             991
                                                                                                                                                                                                                                                                                                                           931
                                                                                                                                                                                                                                                                                                                                                                                          Local Sin
                                                                                                                                                                                                                                                                                                                      2001-639362/73
                              GCAGG 1761
                                                                          GAGCACACCCTGGGCACGGTCCACACCCACAGCGCCCACTTCAAGGTGGATCTGGATCTA 1756
                                                                                                                      GCAGG
                                                            GAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCCACTTCAAGGTGGATCTGGATGTA 1230
                                                                                                                                                         GGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCA 1696
                                                                                                                                                                                           TATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAATACTATTCTATGCCACG
                                                                                                                                                                                                                                                         GGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCACCTTGCTCAACTATGAC 1576
                                                                                                                                                                                                                           TATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCCATAGAAATACGATTCTATGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                       7.4%;
Similarity 98.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABG04942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID No 4933; 103pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1545 BP;
1235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-0649167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0540217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     372 A; 395 C; 429 G; 349 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΥT
                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                       Score 297; DB 23;
Pred. No. 6.7e-66;
                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 is useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               polynucleotide (I) and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              as hybridisation probes,
                                                                                                                                                                                                                                                                                                                                                                                                                          23;
                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1545;
                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                           1170
                                                                                                                                                                                           1110
                                                                                                                                                                                                                         1636
                                                                                                                                                                                                                                                         1050
                                                                                                                                                                                                                                                                                                                                                                                        0
```

RESULT 11

sequence data for this patent did not

form

part of the printed

```
ABQ54593
                               shock syndrome), inflammatory conditions (e.g., mastitis, opphoritis and vaginitis), immune disorders (e.g., congenital and acquired immunodeficiencies, autoimmune opphoritis, systemic lupus erythematosus), blood-related disorders (e.g., anaemia), cardiovascular disorders, respiratory disorders, neurological disorders, gastrointestinal disorders and urinary system disorders. Ovarian antigen polypeptides and polynucleotides may also be used in screening for compounds which modulate ovarian antigen expression or activity. The polynucleotides may further be used for gene therapy, chromosome mapping, in the identification of individuals and in forensic analysis, and the polypeptides may be used as food additives or to prepare antibodies useful in disease diagnosis, drug targeting and phenotyping. The present sequence represents cDNA encoding a human ovarian antigen of the
                                                                                                                                                                                                                                                                                                                        recombinant vectors and host cells comprising human ovarian antigen polynucleotides, antibodies against human ovarian antigens, and the use of ovarian antigen polynucleotides and polypeptides in diagnosing, treating, prognosing or preventing various ovary and/or breast related disorders. Such conditions include ovarian cancer and breast cancer, and metastratic tumours of ovarian or breast origin, reproductive system disorders (e.g., infertility, disorders of pregnancy, anovulation, polycystic ovary syndrome, ovarian cysts, and dysmenorrhoea), endocrine disorders, infections (e.g., chlamydia, HIV, toxoplasmosis, and toxic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to 2175 novel human ovarian antigens (ABP41054-ABP43228) and to cDNAs encoding them (ABQ54131-ABQ56305), and also encompasses polypeptides 90% identical and polynucleotides 95% identical to the sequences of the invention. The invention additionally relates to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 1; SEQ ID No 473; 2922pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Isolated nucleic acid molecules encoding novel ovarian polypuseful in the prevention, treatment and diagnosis of cancer ovarian cancer, immune disorders, cardiovascular disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2002-147878/19.
P-PSDB; ABP41516.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           07-JUN-2000; 2000US-209467P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gastrointestinal disorder; urinary system disorder; drug screening; gene therapy; chromosome mapping; forensic analysis; antibody preparation; cytostatic; immunomodulatory; neuroprotective; antihofdy memory; gynaecological; reproductive; chromosome 7q34-ter;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           infertility; pregnancy disorder; anovulation; polycystic ovary syndro PCOS; ovarian cyst; dysmenorrhoea; endocrine disorder; infection; inflammatory condition; immune disorder; blood disorder; cardiovascular disorder; respiratory disorder; neurological disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human; ovarian antigen; ovary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human ovarian antigen HVVBK73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABQ54593 standard; cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                neurological diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (HUMA-) HUMAN GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-JUN-2001; 2001WO-US18569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200200677-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ovarian cancer; breast cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ovarian;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tumour;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      reproductive system disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             breast; cancer; tumour;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ID NO:473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         polypeptides,
ancer (e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ovary syndrome;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 × 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                              Human; mouse; chicken; rat; secreted expressed sequence tag; SEST; expressed sequence tag; SEST; probe; chemotractic; proliferative; immunomodulatory; haematopoietic; chemotractic; analyesic; haemostatic; thrombolytic; antihinflammatory; cytostatic; antibacterial; antijungal; antiviral; antidiabetic; antiasthmatic; vulnerary; antiparkinsonian; antiulcer; osteopathic; neuroprotective; noctropic; antiparkinsonian; cerebroprotective; anticonvulsant; antidepressant; gene therapy; vaccine; autoimmune disorder; multiple sclerosis; allergic condition; insulin dependent diabetes; asthma; myeloid cell deficiency; ulcer; temperated and deficiency; ulcer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1096 CCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGGAAGTCGAGTGGCCTC 1155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            specification, but was obtained in electronic format directly from WIPO
at ftp.wipo.int/pub/published_pct_sequences.
           lymphoid cell deficiency; burn; osteoporosis; osteoarthritis; central nervous system disorder; Alzheimer's disease; stroke; Parkinson's disease; Huntington's disease; coagulation disorder;
                                                                                                                                                                                                                                                              Human secreted expressed sequence tag SEQ ID NO:547.
                                                                                                                                                                                                                                                                                                                                                                              AAA43972 standard; cDNA; 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1336 CAAGTACACCACGCCCTGACCCGTGGGGTGGACTGCCCCCCTACTTGGCCACCTACGTGGA 1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1156 CTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGT 1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Sin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTATGCCACGGGCTACATCAGCTCGGCATTC 1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAACTTCTATGCGGGGCTGAAGGGCCAGGTGCTGCTGCGGGACAACTTCAACTGTCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCCCGCTTGGTCCAGCCCCACGGCCCTCGCTTCAGGCTGGAGGGCAACGCTGTGCTCTA 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAATACGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCACCTTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGAACAGAACCAGGGCCTCCCCCTGCGGCGACA-----CCACTCAGATCTCTACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGATGCCTTTTGTGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCACTTCGGCGGAGAGCGCATTGCCTATGAGGTCAGCGTGCAAGAGGCAGTGGCGCTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGAGGCCTTGGCCATCTA 1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCATGCCACTGGCTACGTCCACGCCAMCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAATTATGATTACATTTGGGACTTTATCTTCTACCCCAACGGGGTGATGGAGGCCAAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGAAATGCCCACAGGGGTGCCCCTTCGGCGCACTTTAATTCCAACTTTAAAGGTGGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACTTTCCACTACTATGATGCCGATGACCCGGTCCATTATCCCCGAGCCCTCTGCCTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGCGTCACTCATGAGTTAGCCCCCGGCATCGACTGCCCGGGAGACCGCCACCTTCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGAGGACACACCTGCAGGCATGCAGACCAAGTACCTCGATGTCGGCTGGGGCCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCGGCTGGAGCTTTGCCTTCCGGCTGCGCCTCCTCCGGGCTGCAGGTCCTGAACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BP; 142 A; 240 C; 205 G; 155 T; 5 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.7%;
inflammatory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 150.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No. 2.6e-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲,
```

RESULT 13
ABA46592/c
ID ABA465
XX
AC ABA465

ABA46592 standard;

DNA;

289

0

ABA46592

```
В
                                  δÃ
                                                                          В
                                                                                                          Ş
                                                                                                                                                      밁
                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                          chemotactic; proliferative; inmunomodulatory; haematopicatic; chemotactic; proliferative; inmunomodulatory; haematopicatic; chemotactic; antibacterial; antifungal; antiviral; antidiabetic; cytostatic; antibacterial; antifungal; antiviral; antidiabetic; cytostatic; antibacterial; antifungal; antiviral; antidiabetic; cytostatic; unlerary; antifulcer; osteopathic; neuroprotective; antiasthmatic; vulnerary; antifulcer; osteopathic; neuroprotective; concerning antiparkinsonian; antipsoriatic; cerebroprotective; antiparkinsonian; antipsoriatic; cerebroprotective; canticonvulsant; and antidepressant. The SESTs can be used for gene therapy and in vaccines. The SESTs are useful as probes for the concerning and isolation of full-length cDNAs and genomic DNA molecules which correspond to the SESTs. Proteins encoded by the SESTs are useful in assays for determining biological activity and raising antibodies. They may be useful for treatment of autoimmune disorders (asthma), myeloid or lymphoid cell deficiencies, wounds, burns, ulcers, castemporials, osteoparthritis, central nervous system disorders (Alzheimer's, Parkinson's, Huntington's disease, stroke), coagulation consorters (themposis), inflammatory disorders (Crohn's psoriasis, AAA45926 to AAA45921 represent linker variants which are given in the examplification of the present linker variants which are given
                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAA43426 to AAA45925 represent specifically claimed secreted expressed sequence tags (sESTs), isolated from human, mouse, chicken and rat tissue sources. The sESTs can have a range of activities depending on the tissues they were isolated from. The activities include:
                                    2410
                                                                                                              2350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Isolated polynucleotides, and encoded proteins, comprising secreted expressed sequence tags (SESTs), useful for treating various disorders such as autoimmune, infectious, and central nervous system disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Merberg D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tumour; infection;
                                                                                                                                                                                          2290 CTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGGGGGACCAGGA 2349
                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Jacobs K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200021991-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GEMY ) GENETICS INST
122
                                                                          62
                                                                                                                                                                                                                                                Local
                                                                                                                                                      N
GGACTTACCCCCTTTCTCTTACCACGGCTTCT
                                  CGACCTCCCTGCCTTCTCCCACGGGGGCTTCT
                                                                                                            TGCTGGGGCCTGCGAGGTCAACCCCCTAGCTTGCCTGCCCAGGCTGCTGCCCTGTGCCCC 2409
                                                                                                                                                    CTTTGATGAGGACCCCTCCATCTTCTCCCCTGGCAGTGTCTACTTTGAGAAGGGCCAGGA 61
                                                                          TGCTGGGCTCTGCAGCATCAATCCTGTGGCCTGCCTCCCCGACCTGGCAGCCTGTGTCCC
                                                                                                                                                                                                                                                                                                                                                exemplification of the present invention.
                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Page 348; 803pp;
                                                                                                                                                                                                                                                                                                          303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               McCoy JM,
Treacy M,
                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                          BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0104436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99WO-US24206
                                                                                                                                                                                                                                                                                                          46
                                                                                                                                                                                                                                                  1.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             depression; psoriasis;
                                                                                                                                                                                                                                                                                                          A; 106 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LaVallie ER,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bowman MR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               English
                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                Score 73.6; DB 21;
Pred. No. 1.1e-08;
                                                                                                                                                                                                                                                                                                          65 G;
                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                          86 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Collins-Racie LA,
                                    2441
153
                                                                                                                                                                                                                                                                                                          0 other;
                                                                                                                                                                                                                                49;
                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Evans
                                                                                                                                                                                                                                                                      303;
                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ü
                                                                                                                                                                                                                              Gaps
```

```
В
                                                                                                 δÃ
                                  Ş
                                                                                                                                    B
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                            The invention relates to a spatially-addressable set of single exon control of the invention relates to a spatially-addressable set of single exon nucleic acid probes for measuring gene expression in a sample derived from human breast and BT 474 cells. The method involves contacting the probes with a collection of detectably labelled nucleic acids derived from mRNA of human breast, and then measuring the label bound to each probe of the microarray. The probes are useful for verifying the expression of regions of genomic DNA predicted to encode proteins. They are useful for gene discovery, and for determining predisposition and/or prognosing breast disease. Gene expression analysis is useful for assessing the toxicity of chemical agents on cells. The microarray of this invention presents a far greater diversity of probes for measuring gene expression, with far less bias than expressed sequence tag microarrays. The method is suitable for rapid production of functional information from genomic sequence. The Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from MTPD at form information of the invention.
                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 152; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-FEB-2000;
26-MAY-2000;
30-JUN-2000;
03-AUG-2000;
21-SEP-2000;
27-SEP-2000;
                                                                                                     1818
                                  1878
                                                                                                                                                               1758 CAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCCT 1817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New spatially-addressable set of single exon nucleic acid probes, useful for measuring gene expression in sample derived from human breast, comprises number of single exon nucleic acid probes -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200157271-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; microarray; single exon probe; gene expression; breast;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 4; SEQ ID NO 5287; 327pp + sequence listing; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-JAN-2001; 2001WO-US00662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-OCT-2000;
   169
                                                                    229
                                                                                                                                      289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MOLE-)
                   AGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCCGCTACCTGTACCTGGCCAGCAACC 1937
                                                                                              GGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAGG 1877
                                                                                                                                                                                                                                                                                                       WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SG,
GCCAGGCGGCCTTCCGCTTCAAAAGGAAGCTGCCTAAGTACCTGCTCTTTACCAGCCCCC
                                                                                                                                 CAGGCACCAAGAACAGCTTCCAGACACTGCAGATGAAGCTAGAAAAACATCACCAACCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001-496933/54.
                                                                GGAGCCCAAGACACCGCGTGGTCCAGCCAACTCTGGAGCAGACGCAGTACTCCTGGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                breast cell single exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULAR DYNAMICS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cancer;
                                                                                                                                                                                                                                                                      289
                                                                                                                                                                                                                                                                                                       t
D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hanzel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0207456.
2000US-0608408.
2000US-0632366.
2000US-0234687.
2000US-0236359.
                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                      BP;
                                                                                                                                                                                                                                                                                            ification, but was obtained in electronic ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000GB-0024263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0180312.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SS.
                                                                                                                                                                                                                                                                  37 A; 77 C;
                                                                                                                                                                                                                 1.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chen W,
                                                                                                                                                                                                   0,
                                                                                                                                                                                                  Score 69.8; DB 22;
Pred. No. 1.1e-07;
0; Mismatches 137;
                                                                                                                                                                                                                                                                      102 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rank DR;
                                                                                                                                                                                                                                                                  73 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               probe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #5287
                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                    289;
                                                                                                                                                                                                  0
                                                                                                                                                                                                Gaps
                                                                                                                                 230
                                                                                                                                                                                                  0
```

```
밁
                          δÃ
                                                         밁
                                                                                   Ş
                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABA64456/c
                                                                                                                Matches
                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-JUN-2000;
03-AUG-2000;
21-SEP-2000;
27-SEP-2000;
                                                                                                                                                                                                             The invention relates to a single exon nucleic acid probe for measuring human gene expression in a sample derived from human foetal liver. The single exon nucleic acid probes may be used for predicting, measuring and displaying gene expression in samples derived from human fetal liver. The present sequence is a single exon nucleic acid probe of the invention.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly
                             1818
                                                                                   1758 CAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCCT 1817
                                                                                                                                                                        Sequence 289 BP; 37 A; 77 C; 102 G; 73 T; 0 other;
                                                                                                                                                                                                                                                                                                                                           Claim 4; SEQ
                                                                                                                                                                                                                                                                                                                                                                    Human genome-derived single exon nucleic acid probes useful analyzing gene expression in human fetal liver -
                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-483447/52.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-FEB-2000;
26-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200157277-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human foetal liver single exon nucleic acid probe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABA64456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (MOLE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-JAN-2001; 2001WO-US00669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABA64456 standard; DNA; 289
  229
                                                         289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      49
                                                                                                                            Local
                            GGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAGG 1877
                                                        CAGGCACCAAGAACAGCTTCCAGACACTGCAGATGAAGCTAGAAAACATCACCAACCCCT 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTGGGAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAGCAACAAGTGGGGTCACCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGAG 1997
GGAGCCCAAGACACCGCGTGGTCCAGCCAACTCTGGAGCAGACGCAGTACTCCTGGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGTGCTGCCCCAGGCTGGCAGGAGGAGGAGCAGCCATCACCTGGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGAGAACCCCTGGGGCCACAAGCGCACGTACCGCCTGCAGATCCACTCCATGGCCGACC
                                                                                                                152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             foetal liver; gene expression; single exon nucleic acid probe; ss
                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULAR DYNAMICS INC
                                                                                                                                                                                                    at
                                                                                                                                                                                                                                                                                                                                                                                                                                               Hanzel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0180312.
2000US-0207456.
2000US-0608408.
2000US-0632366.
2000US-0234687.
2000US-0236559.
                                                                                                                Conservative
                                                                                                                                                                                                 ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                           ID NO 12761; 639pp + sequence listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000GB-0024263
                                                                                                                                                                                                                                                                                                                                                                                                                                             DK,
                                                                                                                            1.7%;
52.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Chen
                                                                                                                                                                                                                                                                                                                                                                                                                                             ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ВP
                                                                                                               0;
                                                                                                               Score 69.8; DB 2
Pred. No. 1.1e-07
0; Mismatches 13
                                                                                                                                                                                                                                                                                                                                                                                                                                             Rank DR
                                                                                                                                          DB 22;
                                                                                                               137;
                                                                                                               Indels
                                                                                                                                        Length 289;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #12761.
                                                                                                               0
                                                                                                              Gaps
```

ş

1878

AGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAACC 1937

```
RESULT 15
ABA31594/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
              Query Match
Best Local Similarity
  Matches 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                      04-FEB-2000;
26-MAY-2000;
30-JUN-2000;
03-AUG-2000;
21-SEP-2000;
27-SEP-2000;
                                                                                                                       The present invention relates to single exon nucleic acid probes for measuring human gene expression in a sample derived from human heart. The present sequence is one such probe. The probes may be used for predicting, measuring and displaying gene expression in samples derived from the human heart via microarrays. By measuring gene expression, the probes are useful for predicting, diagnosing, grading, staging, monitoring and prognosing diseases of the human heart and vascular system e.g. cardiovascular disease, hypertension, cardiac arrhythmias and congenital heart disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human; gene expression; he cardiovascular disease; hy congenital heart disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1938
                                                                                                                                                                                                                                                                                                                                                                  Penn
                                                        Sequence 289 BP; 37 A; 77 C; 102 G; 73 T; 0 other;
                                                                                 Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wlpo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                  Claim 4; SEQ ID No 10060; 530pp; English.
                                                                                                                                                                                                                                                                                               Single exon nucleic acid probes hearts -
                                                                                                                                                                                                                                                                                                                                        WPI; 2001-488899/53
                                                                                                                                                                                                                                                                                                                                                                                               (MOLE-)
                                                                                                                                                                                                                                                                                                                                                                                                                           04-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-JAN-2001; 2001WO-US00666.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200157274-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Probe #10060 for gene expression analysis in human heart cell sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABA31594;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABA31594 standard; DNA; 289 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTGGGAGAG 2046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCAGGCGTCCCGCTTCAAAAGGAAGCTGCCTAAGTACCTGCTCTTTACCAGCCCCC 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAGCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGAG 1997
                                                                                                                                                                                                                                                                                                                                                                   SS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGAGAACCCCTGGGGGCCACAAGCGCACGTACCGCCTGCAGATCCACTCCATGGCCGACC 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGTGCTGCCCCAGGCTGGCAGGAGGAGCAGGCCATCACCTGGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                              MOLECULAR DYNAMICS INC
                                                                                                                                                                                                                                                                                                                                                                  Hanzel
                                                                                                                                                                                                                                                                                                                                                                                                                        2000US-0180312.
2000US-0207456.
2000US-0608408.
2000US-0632366.
2000US-0234687.
2000US-0236359.
2000US-0236359.
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                  Ŗ,
                1.7%;
                                                                                                                                                                                                                                                                                                                                                                  Chen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              hypertension;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              heart; microarray;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ss.
                                                                                                                                                                                                                                                                                                                                                                  ξ
 0;
Score 69.8; DB 22;
Pred. No. 1.1e-07;
0; Mismatches 137;
                                                                                                                                                                                                                                                                                                                                                                  Rank DR;
                                                                                                                                                                                                                                                                                                         for analyzing gene expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cardiac arrhythmia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              vascular system; probe;
 Indels
                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                289;
 0
                                                                                                                                                                                                                                                                                                          μ
 Gaps
                                                                                                                                                                                                                                                                                                          human
```

1758 CAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCCT 1817

```
밁
                            ş
                                                              밁
                                                                                         Š
                                                                                                                            밁
                                                                                                                                                         Ş
                                                                                                                                                                                          밁
                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                          1818
                              1998
                                                                                              1938
                                                                                                                              169
                                                                                                                                                                                                                                                          289
                                                                                                                                                                                          229
                                                               109
49
                                                                                                                                                          AGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAACC
                                                                                                                                                                                                                        GGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCCGGAAGCTGCTGGAGATGGAGG 1877
                                                                                                                                                                                                                                                        CAGGCACCAAGAACAGCTTCCAGACACTGCAGATGAAGCTAGAAAACATCACCAACCCCT
                                                                                                                         GCAGGCGGCCTTCCGCTTCAAAAGGAAGCTGCCTAAGTACCTGCTCTTTACCAGCCCCC
                    AGCCGCTGCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTGGGAGAG
                                                                                                                                                                                        GGAGCCCAAGACACCGCGTGGTCCAGCCAACTCTGGAGCAGACGCAGTACTCCTGGGAGC
                                                                                              ACAGCAACAAGTGGGGTCACCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGAG
AGGTGCTGCCCCAGGCTGGCAGGAGGAGCAGGCCATCACCTGGGCAAG
                                                              AGGAGAACCCCTGGGGCCACAAGCGCACGTACCGCCTGCAGATCCACTCCATGGCCGACC
                               2046
                                                                                              1997
                                                                                                                                                            1937
                                                               50
                                                                                                                                                                                          170
                                                                                                                              110
                                                                                                                                                                                                                                                          230
```

Search completed: May 20, 2003, 03:47:38 Job time: 841 secs

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                             Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing:
  ဂဂ
                                           00000000
                                                                                                                                                                                                                                               000
                                                                                                                                                                                                                                                                                                   ĕ
                                                                                                                                                                                                                                                                                                                                                      score greater than or equal and is derived by analysis c
                                                                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB seq
                                                                                                                                                                                                                                                                                                   Score
 nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                              Issued_Patents_NA:*
1: /cgn2_6/ptodata/2,
2: /cgn2_6/ptodata/2,
3: /cgn2_6/ptodata/2,
4: /cgn2_6/ptodata/2,
5: /cgn2_6/ptodata/2,
6: /cgn2_6/ptodata/2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              441362 segs, 153338381 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.5
Copyright (c) 1993 - 2003 Compus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20, 2003, 03:31:13; Search time 214 Seconds (without alignments) 5789.599 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                            /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
/cgn2_6/ptodata/2/ina/5B_COMB.seq:*
/cgn2_6/ptodata/2/ina/6A_COMB.seq:*
/cgn2_6/ptodata/2/ina/6B_COMB.seq:*
/cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
/cgn2_6/ptodata/2/ina/Packfiles1.seq:*
                                                                                                                                                                                                                                                                                                                                                     by analysis of the total score distribution.
 Length
                                                                                                                                                                                                                                                                                                   멂
                  US-08-232-463-14
US-09-207-008-1
US-09-207-005-17
US-09-216-531-49
US-08-480-784-24
US-08-487-002-24
US-08-488-0118-24
US-08-488-0118-24
US-08-488-0118-24
US-08-850-727-24
PCT-US95-10202-24
PCT-US95-10203-24
PCT-US95-10201-24
PCT-US95-10203-24
PCT-US95-07201-10
US-08-367-8418-43
US-08-3658-136-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ltd
                   Sequence
                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                                              Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
        Sequence
                   1, Appli
1, Appli
1, Appli
17, Appli
19, Appli
19, Appli
24, Appli
25, Appli
26, Appli
27, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 1
US-08-232-463-14
                     ; CLONE: pTZgpt-F1s
US-08-232-463-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0000
Query Match
                                                                                                                                                                                                                                                                                                                               COUNTRY: USA
ZIP: 22313-0299
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                      TOPOLOGY: line
IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                         STREET: 1800 Dia
CITY: Alexandria
STATE: VA
                                                            STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VA
                                                    linear
 2.1%;
```

```
იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 14, Application US/08232463 Patent No. 5670367
                                                                                             MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
FILING DATE:
CLASSIFICATION DATA:
APPLICATION UMBER: US/07/935,313
FILING DATE:
APPLICATION NUMBER: EP 91 114 300.6
FILING DATE: 26-AUG-1991
APPLICATION NUMBER: 29,768
REFIGERATION NUMBER: 29,768
REGISTRATION NUMBER: 30472/114 IMMU
TELEPHONE: (703)863-4109
TELEPAX: (703)863-4109
TELEX: 899149
TINFORMATION ECO FOR NO. 14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER,
APPLICANT: FALKNER, F. G.
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS NUMBER OF SEQUENCES: 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E: Foley & Lardner
1800 Diagonal Road,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      00000000000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120001
90051
51259
87350
87350
32043
320543
327543
3381
3381
3381
3381
3404
1335
1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-458-568A-11
US-09-245-041-5
US-08-781-891-209
US-08-781-891-79
US-09-781-891-79
US-09-781-891-79
US-09-781-891-79
US-09-781-150-3
US-09-149-476-288
US-09-09-119-1
US-09-371-507-1
PCT-US95-0908-1
US-08-265-429A-1
PCT-US95-0908-1
US-09-245-162-1
US-09-524-162-1
US-09-255-0908-1
US-09-265-43-3
US-09-167-354-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e 11 Appl
e 209, Appl
e 209, Appl
e 79, Appl
e 44, Appl
e 101, Appl
e 101, Appl
e 11, Appl
e 1, Appl
e 1,
```

Score

85.8;

DB 1;

Length 7218;

```
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                              밁
                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
Š
                                 밁
                                                            δõ
                                                                                                                                                            В
                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-300-008B-1/c
                                                                                                                                                                                                                                                                                          US-09-300-008B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: CONCANNON et al.
TITLE OF INVENTION: A GENE ASSOCIATED WITH NIJMEGEN BREAKAGE
TITLE OF INVENTION: SYNDROME, ITS GENE PRODUCT AND METHODS:
FILE REFERENCE: 9924-0003-228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 2.4% Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Application US/09300008B Patent No. 6458534
                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO :
                                                                                                                                                                                                                          Best Local Similarity Matches 191; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/09/300,008B
CURRENT FILING DATE: 1999-04-27
PRIOR APPLICATION NUMBER: US 60/083,269
PRIOR FILING DATE: 1998-04-27
NUMBER OF SEQ ID NOS: 164
                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                       NAME/KEY: CDS
LOCATION: (26
                                                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 4386
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2926 TCACCTACTTCCTCCTCCTCCTGTTCCTGCCTTCTTCTATCCTGCAATTTCTCCC
                                                                                                                          3761 AATCTTCAGGTGAAAAAGGCAAGCCACAGAAATGTGTATA-GCGCACTTCCCCATTTGTGT 3819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1413 YYYYYYYYYYYYYYYYYY 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3226 TCTGCCTGCCTCATGCTCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3106 AGAGTGGCCAATCCCTGTGTGTCGTTCCCTTGTGTCTGTTGCTTATTGGGAGTAGGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3046 AGTCAAGTTCCGTCTCCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGACCCCTAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTCCTACCCCTGTCCTGGGGCTGGGTGTTTTCAGGACAGCTGCTTCTGTGCATTTGTG 3225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAATCCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCCAGCCCTCAGTTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGATGCTTCTGCTCACATTCCCTCTCATCCAGGTCCTTTCCTTCTCGTCTTCCTCTCTC
ATAAATGGGTAACACTGATTACTTTTGGGAGGGGAACCAGTAGGTTGAGGACAGGAGAGG
                                                                                                                                                          TACAGCATAATGGAAAAAAATATTAAAAACATTATATTGATATTCCTATAATTTTT 2771
                               AGGAAATTATTTAAAAATAGGAATTTGAATAGGACTCAAAAATCCCTGGAAAGATTCATA
                                                              AATCTACTAAGTAAAAAAGCAAGGTGTAGAACACTGCATATGTTATGCTATCATTTGTGT
                                                                                                                                                                                                                                                                                                       (26)...(2287)
                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                       1.3°;
54.9°;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    250;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 1.8e-11;
250; Mismatches 122;
                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                        Score 51.6; DB 4; Length 4386;
Pred. No. 0.005;
0; Mismatches 144; Indels 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FOR
                                                                                                                                                                                                                          13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     THEIR USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3105
                                                                                              2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2925
                               2651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                          4.
```

```
RESULT 3
US-09-007-005-17/c
; Sequence 17, Applic
; Sequence 10, Applic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                        δã
                                                                                                                                                                                                                                                                                                                                                                                                 ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                         γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                             US-09-244-796-17/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-007-005-17
               Sequence 17, Application US/09244796
Patent NO. 6281344
GENERAL INFORMATION:
APPLICANT: Szostak, Jack W.
APPLICANT: Roberts, Richard W.
APPLICANT: Liu, Rihe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: SELECTION OF PROTEINS USING TITLE OF INVENTION: FUSIONS FILE REFERENCE: 00786/350003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Szostak, Jack W. APPLICANT: Roberts, Richard W. APPLICANT: Liu, Rihe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EARLIER APPLICATION NUMBER: 60/035,963
EARLIER FILING DATE: 1997-01-27
EARLIER APPLICATION NUMBER: 60/064,491
EARLIER FILING DATE: 1997-11-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/09/007,005B CURRENT FILING DATE: 1998-01-14
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (1)...(289)
OTHER INFORMATION: n =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTHER INFORMATION: Translation template
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2650 AGAAATGAGTATCATGAATTTTTTCTGAGGGGAACCAAGTAGCTAGGACAATGG---TG
                                                                                                                                                                                                                                                                        3045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3933 GAAGGGTCTTAACACTTACACCCTTTTGTACATTTTGAATTTTGAACCATGTGACTGTAT 3992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2865 AAGGATGCTTCTGCTCACATTCCCTCTCATCCAGGTCCTTTCCTTCTCGTCTTCCTCTCT 292
                                                                                                                                                                                                                                                                                                                  140
                                                                                                                                                                                                                                                                                                                                                                                                    200 SYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNY 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     260 AYGYCYGYCYAYAYGYAYGYTYTYAYCYGYCYAYGYCYTYGYSYNYNYSYNYNYSYNYNY 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Y Match 1.2%; Score 49; DB 4; Local Similarity 6.1%; Pred. No. 0.0059; ses 13; Conservative 103; Mismatches
                                                                                                                                                                                                                                80 SYNYNYSYNYNYSYNYNYSYNYNYCYAYTYTYG
  OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAAGGGTGACTTTAGTCTTTACCTTACGTACATTTAGAATTTTGAAC--TGTGACTATAT 2536
                                                                                                                                                                                                                                                                      CAGTCAAGTTCCGTCTCCTCCAGCCCTATGG 3077
                                                                                                                                                                                                                                                                                                                  YNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYS
                                                                                                                                                                                                                                                                                                                                                            CGAATCCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCCAGCCCTCAGTTTT 304
                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCACCTACTTCCTCCTCCTCCTCCTGCTTCCTGCCTTCTTCTATCCTGCAATTTCTCC 2984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TAACTATTTAATAAACAAAACACATTTAAAAATGAAAAAAAGATGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/09007005B
  SELECTION OF PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A,T,C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                48
  USING RNA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4; Length 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2594
                                                                                                                                                                                                                                                                                                                    81
```

0,

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ŷ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         : NAME/KEY: misc_feature
: LOCATION: (1)...(289)
: OTHER INFORMATION: n = A,T,C or G
US-09-244-796-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-276-531-49; Sequence 49, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 33
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 17
LENGTH: 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/244, CURRENT FILING DATE: 1999-02-05
EARLIER APPLICATION NUMBER: 60/055, 963
EARLIER FILING DATE: 1997-01-27
EARLIER APPLICATION NUMBER: 60/064,491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLIER APPLICATION NUMBER: EARLIER FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: FUSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: Translation template
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3045 CAGTCAAGTTCCGTCTCCTCCAGCCCTATGG 3077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2865 AAGGATGCTTCTGCTCACATTCCCTCTCATCCAGGTCCTTTCCTTCTCGTCTTCCTCTCT 2924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2985 CGAATCCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCCAGCCCTCAGTTTT 3044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2925 CTCACCTACTTCCTCCTCCTCCTGCTGCTTCCTCTCTTCTATCCTGCAATTTCTCC 2984
                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                      TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140 SYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                260 AYGYCYGYCYAYAYGYAYGYTYTYAYCYGYCYAYGYCYTYGYSYNYNYSYNYNYSYNYNY 201
                                                                                                                                                                                                                                                                                                                                                PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                   PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   200 SYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNY 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                           CITY: PALO ALTO
STATE: CALIFORNIA
                                                                                                                                                                                                       STREET:
                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE: 00786/350007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SYNYNYSYNYNYSYNYNYCYAYTYTYG 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1997-01-27
APPLICATION NUMBER: 60/064,491
FILING DATE: 1997-11-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13;
                                                                                                                        94304
RE: Word Perfect 6.1 for Windows/MS-DOS 6.2 APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/09276531
                                                                                                                                                                                                                                              Guegler, Karl J.
Baughn, Mariah R.
Baughn, Mariah R.
VENTION: COMPOSITION FOR THE DETECTION OF GENES
VENTION: RECEPTORS AND PROTEINS ASSOCIATED WITH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative 103; Mismatches
                                                                                                                                                                                                   3174 PORTER DRIVE
                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                   Yue, Henry
                                                                                                                                                                                                                                                                                                                                                                                                        Hillman, Jennifer L.
                                                                                                                                                                                                                                                                                                                                                                                                                                         Bandman, Olga
                                                                                                                                                                                                                       INCYTE PHARMACEUTICALS, INC
                                                                                                                                                                                                                                                                                                                                                                                                                           Preeti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-01-14
                                                                                                                                                                                                                                                                                                                                                                 Roopa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       09/007,005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/09/244,796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 49; DB 4;
Pred. No. 0.0059;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 289;
                                                                                                                                                                                                                                                                                    CELL PROI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                    PROLIFERATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 6
US-08-960-022-11/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-276-531-49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best
                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO:
                                                                                         COUNTRY: U.S.A.
ZIP: 02140
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy d
                                     MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3629 AATAGCAAGAGATGAGAAACAACAGAAACTTTTTTCTCTAAAGGACTGGTTAAATCAATT 3688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IMMEDIATE SOURCE:
                                                                                                                                                                                                                NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3689 CTGATACAGCCTTACAATACAATAGTATGCAGCTAAAAAATAATTGTATGTCTTTATATA 3748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                              TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               154 AGTAGCCAAAAAGTAGAAACAATACAAAGTTCCATTTACTGATGAATGGATAAATGAAAAT 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDIAL BLAND 1314935
          APPLICATION NUMBER: FILING DATE:
                                                                                                                                                          STREET: 87 Cambi
CITY: Cambridge
STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity 61.7
nes 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Lynn E. Murry, Ph.D.
REGISTRATION NUMBER: 42,918
REFERENCE/DOCKET NUMBER: PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                         NO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : 1571 base pairs
                                                                                                                                                         ₹
                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/08960022
                                                                                                                                                                                      E: Genetics Institute,
87 CambridgePark Drive
                                                                                                                                                                                                                                                                   Merberg, David
Treacy, Maurice
Spaulding, Vikki
Agostino, Michael J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (650)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BLADTUT02
                                                                                                                                                                                                                                                                                                                                                                          Jacobs, Kenneth
                                                                                                                                                                                                                                                                                                                                 Racie, Lisa A
                                                                                                                                                                                                                                                                                                                                                 LaVallie, Edward R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (650)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    March 27, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Herewith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     845-4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.18;
                                                                                                                                                                                                                                                                                                                                                              John
                                                                                                                                                                                                                                              SECRETED PROT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/09/276,531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/079,677
                         US/08/960,022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PA-0008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 46.4; DB
Pred. No. 0.06;
                                                                                                                                                                                                                                                            PROTEINS AND POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                     Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BG
                                                        #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1571;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
```

ATTORNEY/AGENT INFORMATION:

NAME: Sprunger, Suz REGISTRATION NUMBER:

```
; MOLECULE TYPE: cDNA US-08-960-022-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-480-784-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 113; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 24,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: (617) 876-58 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                          FILING DATE: 24-MAR-PRIOR APPLICATION DATA:
                                        CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/409,305
FILING DATE: 24-MAR-1995
                                                                                                                                       COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                   MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                 STREET: L.C.
STREET: Washington
CTATE: DC
TTATE: TTATE
                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3871 GAATAAATGGGTAACACTGATTACTTTTGGGAGGGGAACCAGTAGGTTGAGGACAGGAGA 3930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: (617) 498-8284
                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3991 ATTACCTATTCAAAATAAACAATAA 4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  757 GAATATACGTGGAATAATGCAAAAGGAACTGGGGGAGACAAAAATGAGAA-----AGT 705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  817 CATTIGIGIAAAAAGAGCIGACACATACAGATAAAIGTATAIGAAIGTATATAIGCACA 758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            644 GTTACTGATTAAATATAAAAAATAA 620
                                                                                                          APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
APPLICATION NUMBER: US 08/348,824 FILING DATE: 29-NOV-1994
                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGAAGGGTCTTAACACCTTTACACCCTTTTGTACATTTTGAATTTTGAACCATGTGACTGT 3990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGTGGAAAGGTAAACTTAACACACTTTGATATCTGTTGAATTTTGTACTATCTACATAT 645
                                                                                                                                                                                                                                    20005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    569347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/08480784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2061 base pairs
                                                                                                                                                                                                                                                                                             E: Venable, Baetjer, Howard & Civiletti, LLP 1201 New York Avenue, N.W., Suite 1000
                                                                                                                                                                                                                                                                                                                                                                                          Futreal,
                                                                                                                                                                                                                                                                                                                                                                                                                        Harshman, Keith D.
Shattuck-Eidens, Donna M.
Tavtigidn, Sean V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                           Wiseman, Roger W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kamb,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Goldgar, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Swenson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Skolnick,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                   Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alexander
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Yoshio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        876-5851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.1%;
                                                                                                                                                                                                                                                                                                                                                           Susceptibility
                                                                                                                                                                                                                                                                                                                                              P. Andrew
17q-Linked Breast and Ovarian Cancer
Susceptibility Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Jeff
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mark
                                                                                                                        US/08/480,784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 45; DB 2
Pred. No. 0.15;
0; Mismatches
                                                                                                                                                      Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 2061;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲.
```

```
; ORIGINAL SOURCE:
; ORGANISM: Hom
US-08-480-784-24
                                                                                                                                                                                                                                                                                                             US-08-483-553-24
                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                             Sequence 24
Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 100; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: linea:
MOLECULE TYPE: DNI
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Ihnen, Jeffrey L.
REGISTRATION NUMBER: 28,957
REFERENCE/DOCKET NUMBER: 241
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 02-SEP-1994
PRIOR APPLICATION DATA:
APPLICATION UNMBER: US 01
FILING DATE: 12-AUG-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             2990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                     NUMBER OF SEQUENCES:
                                                                                  TITLE OF INVENTION:
                                                                                                                                APPLICANT:
                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2930 CTACTTCCTCCTCCTCCTCTGTTCCTGCCTTCTTCTATCCTGCAATTTCTCCCGAAT 2989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 16-SEP-
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                  APPLICANT:
                                                                                                                                            APPLICANT:
                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         177
                                                                                                                                                                                                                                                                                                                                                                     297 CAGTGGCGTGATCTCGNC 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US VI
                          ADDRESSEE: Venable, Baetjer, Howard & Civiletti, STREET: 1201 New York Avenue, N.W., Suite 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENGTH:
                                                                                                                                                                                                                                                                   24, ...
5709999
WAT
                                                                                                                                                                                                                                                                                                                                                                                                  AAGTTCCGTCTCCTCC 3067
                                                                                                                                                                                                                                                                                                                                                                                                                                CCTTTCTTTCCTTTCCTTTCTTGACAGAGTCTTGCTCTGTCACTCAGGCTGGAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCCAGCCCTCAGTTTTCAGTC 3049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
                                                                                                         Harshman, Keith D.
Shattuck-Bidens, Doi
Tavtigian, Sean V.
Wiseman, Roger W.
Futreal, P. Andrew
                                                                                                                                                                                                                                                                                            Application US/08483553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    202-962-8300
                                                                                                                                                                                                                     Skolnick, Mark
Goldgar, David
Miki, Yoshio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                        Kamb, Alexander
                                                                                                                                                                                                       Swenson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  202-962-4810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA (genomic)
                                                                                                 17q-Linked Breast and Ovarian Cancer
                                                                                   Susceptibility Gene
                                                                                                                                                                                                       Jeff
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         50.5%;
                                                                       85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US 08/308,104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US 08/289,221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  us 08/300,266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 44.2; DB 1;
Pred. No. 0.11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24884-109347
                                                                                                                                                             Donna M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                         LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

```
US-08-487-002-24
                                                                                                                                                                                  밁
                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-483-553-24
Sequence 24, Application US/08487002 
Patent No. 5710001 
GENERAL INFORMATION: 
APPLICANT: Shattuck-Eidens, Donn.
                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 202-962-8300
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                             HYPOTHETICAL: NC ANTI-SENSE: NO ORIGINAL SOURCE: ORGANISM: Home
                                                                                                                                       3050 AAGTTCCGTCTCCTCC 3067
                                                                                                                                                                                                                                                                         2930 CTACTTCCTCCTCCTCCTGCTGCTTCTGCCTTCTTCTATCCTGCAATTTCTCCCGAAT 2989
                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/300,266
FILING DATE: 02-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGI.
MOLECULE TYPE: DN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 29-NUV-11-1
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/308,104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: Patentin Reli
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                              177
                                                                                                                                                                                                                                                                                                          117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                        297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: Ihnen, Jeffrey L. REGISTRATION NUMBER: 28 REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US OF FILING DATE: 16-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 0 FILING DATE: 24-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: FILING DATE: 12-AUG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ropology: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENGTH:
                                                                                                                      CAGTGGCGTGATCTCGNC 314
                                                                                                                                                                                                              CCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCCAGCCCTCAGTTTTCAGTC 3049
                                                                                                                                                                                                                                            TCCTTNCCTTTCCCTTCCCTTCCNCCTTCTTTCCNTCTNTCTTTCCTTTCCTTTCCT 176
                                                                                                                                                                                CCTTTCTTTCCTTTCTTTGACAGAGTCTTGCTCTGTCACTCAGGCTGGAGTG
                                                                                                                                                                                                                                                                                                                                                                    100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                    Conservative
Shattuck-Eidens, Donna M.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              202-962-4810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JMBER: US 08/289,221
12-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       double
                                                                                                                                                                                                                                                                                                                                                                                 1.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 08/348,824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US 08/409,305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/08/483,553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28,957
                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24884-109347
                                                                                                                                                                                                                                                                                                                                                                               Score 44.2; DB Pred. No. 0.11;
                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
                                                                                                                                                                                                                                                                                                                                                                 98; Indels
                                                                                                                                                                                                                                                                                                                                                                                               Length 421;
                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                296
                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                     Ş
                                                                                                                                               Š
                                                          밁
                                                                                                                    밁
                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
CCTTTCTTTCCTTTCCTTTCTTGACAGAGTCTTGCTCTGTCACTCAGGCTGGAGTG
```

US-08-487-002-24 TELEFAX: 202-962-8300 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 421 base pairs COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible ANTI-SENSE: NO ORIGINAL SOURCE: MOLECULE TYPE: HYPOTHETICAL: 1 ANTI-SENSE: NO SOFTWARE: Patentin Rel CURRENT APPLICATION DATA: ATTORNEY/AGENT INFORMATION: PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE: 12-AUG-PRIOR APPLICATION DATA: PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE: 29-NOV-PRIOR APPLICATION DATA: CORRESPONDENCE ADDRESS: NUMBER OF SEQUENCES: TITLE OF INVENTION: TELECOMMUNICATION INFORMATION: PRIOR APPLICATION DATA: APPLICATION NUMBER: 2990 CCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTC 3049 STREET: 1201 New CITY: Washington Local Similarity les 100; Conserv NAME: Ihnen, Jeffre REGISTRATION NUMBER: APPLICATION NUMBER: FILING DATE: 02-SE FILING DATE: APPLICATION NUMBER: US 0: FILING DATE: 24-MAR-1995 APPLICATION NUMBER: OPERATING SYSTEM: PC-DOS/MS-DOS COUNTRY: ADDRESSEE: ORGANISM: TYPE: nucleic acid STRANDEDNESS: doub REFERENCE/DOCKET NUMBER: TOPOLOGY: TELEPHONE: CTACTTCCTCCTCCTCCTGTTCCTGCCTTCTTCTATCCTGCAATTTCTCCCGAAT TCCTTNCCTTTCCCTCCCTTCCNCCTTCTTTCCNTCTNTCTTTCCTTTCCTTTCCT 176 GTCTACCTTTCCTTCCTTCCCTTCCTTTTCTTTCTTTCCTTTCCTTTCCTTTCTTT 20005 E: Venable, Baetjer, Howard & Civiletti, 1201 New York Avenue, N.W., Suite 1000 USA Nakamura, Yusuke Durocher, Francine Conservative Emi, Mitsuru Simard, Homo sapiens linear ö Jeffrey L UMBER: US 08/289,221 12-AUG-1994 16-SEP-1994 29-NOV-1994 DNA (genomic) 02-SEP-1994 double Susceptibility 1.1%; 17q-Linked Breast and Ovarian Cancer Susceptibility Gene US 08/308,104 Release #1.0, US 08/300,266 US 08/409,305 US/08/487,002 US 08/348,824 28,957 24: Score 44.2; DB Pred. No. 0.11; 0; Mismatches 0; 24884-109347 Version DB 1; #1.30 ; 86 Length 421; Indels 0; Gaps 2989 236

3050 AAGTTCCGTCTCCTCC

3067

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08-483-554B-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Wiseman,
APPLICANT: Futreal,
TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                       MOLECULE TYPE: I
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: 202-962-8300
NFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 08/348,824
FILING DATE: 29-$VV-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/308,104
FILING DATE: 16-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 08/403,000 FILING DATE: 24-MAR-1995
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
08/348,824
                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 421 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION: 514
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
THE TIME TO THE TOTAL THE TOTAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      297 CAGTGGCGTGATCTCGNC 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 07-JU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: UZIP: 20005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                                                                                                                                                                                     TOPOLOGY:
                                                                                                                                                                                                                TYPE: nucleic acid
STRANDEDNESS: doub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Ihnen, Jeffre REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 08/289,221 FILING DATE: 12-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 0 FILING DATE: 02-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24, Application US/08483554B
5. 5747282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION:
                                     SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E: Venable, Baetjer, Howard & Civiletti, 1201 New York Avenue, N.W., Suite 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SKOINICK, Mark H. Goldgar, David E.
                                                                                                                                                                                                                                                                                                                                                                                                         202-962-8300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Tavtigian,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Shattuck-Eidens, Donna M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Swenson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Miki, Yoshio
Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IBM PC compatible
                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFU...
Jeffrey L.
28,957
                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-JUN-1995
                                                                                                                                               DNA (genomic)
                                                                                                                                                                                                                       double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alexander
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , Jett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Susceptibility Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17q-Linked Breast and Ovarian Cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Roger W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Keith D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US 08/300,266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/08/483,554B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sean V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   24884-109347
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-483-554B-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-488-011B-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 1.1%;
Best Local Similarity 50.5%;
                                                                                                     APPLICATION DATA:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/348,824
APPLICATION NUMBER: US 08/308,104
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/308,104
                                                                                                                                                                                            CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08
FILING DATE: 24-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2930 CTACTTCCTCCTCCTCCTGCTTCCTGCCTTCTCTATCCTGCAATTTCTCCCGAAT 2989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 20005
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3050 AAGTTCCGTCTCCTCC 3067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2990 CCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTC 3049
                          PRIOR APPLICATION DATA:
                                             FILING DATE: 16-SEP-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/300,266
FILING DATE: 02-SEP-1994
                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin Relicuration DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 117 TCCTTNCCTTTCCCTTCCCTCCCCTTCCTTTCCNTCTNTCTTTCCTTTCCT 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 297 CAGTGGCGTGATCTCGNC 314
                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/0 FILING DATE: 07-JUN-1995
                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 1201 New CITY: Washington
                                                                                                APPLICATION NUMBER: US 0 FILING DATE: 16-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: U
ZIP: 20005
               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTTTCTTTCCTTTCTTTCTTGACAGAGTCTTGCTCTGTCACTCAGGCTGGAGTG 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INVENTION: .17q-Linked Breast and Ovarian Cancer INVENTION: Susceptibility Gene F SEQUENCES: 85
                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/08488011B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E: Venable, Baetjer, Howard & Civiletti, LLP 1201 New York Avenue, N.W., Suite 1000
                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Futreal, P. Andrew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Wiseman, Roger W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Harshman, Keith D.
Shattuck-Eidens, Donna M.
Tavtigian, Sean V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Goldgar, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kamb, Alexander
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Swenson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Skolnick, Mark
                                                                                                                                                                                                                                                                                                                   PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                     IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                      Floppy disk
MBER: US 08/289,221
12-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Yoshio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Jeff
                                                                                                                                                                                                                   US 08/409,305
                                                                                                                                                                                                                                                                                     US/08/488,011B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 44.2; DB Pred. No. 0.11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-488-011B-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-850-727-24
                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 24,
Patent No. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 202-962-8300 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 24
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-962-4810
                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGINAL SOURCE: ORGANISM: Hom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3050 AAGTTCCGTCTCCTCC 3067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2930 CTACTTCCTCCTCCTCCTGTTCCTGCCTTCTCTTCTATCCTGCAATTTCTCCCGAAT 2989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: DN
HYPOTHETICAL: NO
              COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOCTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ANTI-SENSE:
                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                          TITLE OF INVENTION: 17q-Linked Breast a
                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       117 TCCTTNCCTTTCCTTTCCCTCCCTTCCNCCTTCTTTCCNTCTNTCTTTTCCTTTCCTTTCCT 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 421 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Ihnen, Jeftre REGISTRATION NUMBER:
                                                                                                                                                   Local Similarity
les 100; Conserv
                                                                                                                                                CITY: Washington
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGTGGCGTGATCTCGNC 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCCAGCCCTCAGTTTTCAGTC 3049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTTTCTTTCCTTTCCTTTCTTGACAGAGTCTTGCTCTGTCACTCAGGCTGGAGTG 296
                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION:
                                                                                                          20005
                                                                                                                                                                                                                                        I: Futreal, P. INVENTION: 17
                                                                                                                                     몽
                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/08850727
                                                                                                                                                                                                                                                                                                                                                                  Skolnick, Mark |
Goldgar, David
Miki, Yoshio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NO
                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                     Harshman, Keith D.
Shattuck-Eidens, Do
Tavtigian, Sean V.
                                                                                                                                                                                                                                                                       Wiseman, Roger W
                                                                                                                                                                                                                                                                                                                                      Kamb,
                                                                                                                                                                                                                                                                                                                                                 Swenson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 , Jeffrey L. 28,957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA (genomic)
                                                                                                                                                                                                                                                                                                                                      Alexander
                                                                                                                                                                                                                                                                                                                                                   Jeff
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.1%;
                                                                                                                                                                                                                                       17q-Linked Breast and Ovarian Cancer
                                                                                                                                                                                                                                                                                                                                                                                 Mark H.
David E.
 US/08/850,727
                                                                                                                                                                 Baetjer, Howard & Civiletti, rk Avenue, N.W., Suite 1000
                                                                                                                                                                                                                                                          Andrew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 44.2; DB Pred. No. 0.11; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24884-109347-09
                                                                                                                                                                                                                                                                                                        Donna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 421;
```

```
ORIGINAL SOURCE:
ORGANISM: Hom
US-08-850-727-24
                                                                                                                                                                   20
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                             밁
                                                                    PCT-US95-10202-24
                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 100; Conserv
                               Sequence 24, Application PC/TUS9510202 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: 202-962-8300 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: DI
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/289,221 FILING DATE: 12-AUG-1994 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/300,266
FILING DATE: 02-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                    2930 CTACTTCCTCCTCCTCCTGCTTCCTGCCTTCTCTTCTATCCTGCAATTTCTCCCCGAAT 2989
                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICANT:
                                                                                                                                                                     3050 AAGTTCCGTCTCCTCCC 3067
                                                                                                                                                                                                                                      2990 CCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTC 3049
                                                                                                                                                                                                                                                                                                                                             117
                                                                                                                                    297 CAGTGGCGTGATCTCGNC 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 0 FILING DATE: 16-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: FILING DATE: 07-JU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Ihnen, Jeffrey L. REGISTRATION NUMBER: 28,957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE:
                                                                                                                                                                                                                                                                          TCCTTNCCTTTCCCTTCCCTTCCNCCTTCTTTCCNTCTNTCTTTCCTTTCCT 176
                                                                                                                                                                                                     CCTTTCTTTCCTTTCCTTTCTTGACAGAGTCTTGCTCTGTCACTCAGGCTGGAGTG 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
              Shattuck-Eidens, Donna M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      202-962-4810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              double
                                                                                                                                                                                                                                                                                                                                                                                                                            1.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 08/308,104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US 08/483,554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24884-109347
                                                                                                                                                                                                                                                                                                                                                                                                                            Score 44.2; DB 4; Pred. No. 0.11;
                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                            98;
                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                            236
```

APPLICANT: Nakamura, Yusuke APPLICANT: Durocher, Francine TITLE OF INVENTION: In Vivo Mut TITLE OF INVENTION: in the 17q-TITLE OF INVENTION: Susceptibil NUMBER OF SEQUENCES: 85

In Vivo Mutations and Polymorphisms in the 17q-Linked Breast and Ovarian Cancer

APPLICANT:

Emi, Mitsuru

Simard, Jacques

CORRESPONDENCE ADDRESS:
ADDRESSEE: Venable, Baetjer, Howard & Civiletti,
STREET: 1201 New York Avenue, N.W., Suite 1000

Susceptibility Gene 85

```
В
                            Š
                                                           밁
                                                                                       20
                                                                                                                      В
                                                                                                                                               Š
                                                                                                                                                                                밁
                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                    PCT-US95-10202-24
                                                                                                                                                                                                                                                     Query Match 1.18;
Best Local Similarity 50.58;
                                                                                                                                                                                                                                          Matches 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NFORMATION FOR SEQ ID NO:
                                                                                  2990 CCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTC 3049
                                                                                                                                            2930 CTACTTCCTCCTCCTCCTGCTTCCTGCCTTCTTCTATCCTGCAATTTCTCCCGAAT 2989
                                                                                                                                                                                                      ORIGINAL SOURCE:
                          3050 AAGTTCCGTCTCCTCC 3067
                                                                                                                                                                                                                                                                                                                                              ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                          HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS LENGTH: 421 base pair:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 29-NOV-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
                                                           237
                                                                                                                117 TCCTTNCCTTTCCCTTCCCTTCCNCCTTCTTTCCNTCTNTCTTTCCTTTCCTTTCCT 176
297 CAGTGGCGTGATCTCGNC 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: FILING DATE: 16-SE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US FILING DATE: 07-JUN-1995
                                                                                                                                                                                                                                                                                                                   ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Innen, Jeffre REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                           OPOLOGY:
                                                      CCTTTCTTTCCTTTCCTTTCTTGACAGAGTCTTGCTCTGTCACTCAGGCTGGAGTG 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20005
                                                                                                                                                                                                                                                                                                                                                                                                                    nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Washington
DC
                                                                                                                                                                                                                                                                                                                                                                                                                                    421 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   202-962-8300
                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                               ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UMBER: US 08/300,266
02-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Jeffrey L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JMBER: US 08/348,824
29-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                        DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MBER: US 08/289,221
12-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                         double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US 08-308,104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US 08/409,305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCT/US95/10202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28,957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24884-109347
                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                   Score 44.2; DB Pred. No. 0.11;
                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                    DB 5;
                                                                                                                                                                                                                                        98;
                                                                                                                                                                                                                                                                 Length 421;
                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                    Gaps
                                                                                                                  236
                                                                                                                                                                                                                                       0
```

RESULT 14

Conservative

98;

Indels

0

Gaps

0,

```
PCT-US95-10203-24
                                                                PCT-US95-10203-24
Query Match
Best Local Similarity
Matches 100; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION
                                                                                                      TOPOLOGY: 11neo
MOLECULE TYPE: D'
HYPOTHETICAL: NC
                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                         ANTI-SENSE: NO
ORIGINAL SOURCE:
ORGANISM: Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US FILING DATE: 07-JUN-1995 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 24-MAR-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET: 1201
CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: U
ZIP: 20005
                                                                                                                                                                                                                                                                                                              NAME: Ihnen, Jeffre REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: FILING DATE: 12-AUG
                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: FILING DATE: 02-SE
                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 0 FILING DATE: 29-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                     STRANDEDNESS:
                                                                                                                                                                                                                                                               TELEPHONE:
                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Venable, Baetjer, Howard & Civiletti, LLP
STREET: 1201 New York Avenue, N.W., Suite 1000
                                                                                                                                                                                                    LENGTH:
                                                                                                                                                                                    nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application PC/TUS9510203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Miki, Yoshio
Swenson
                                                                                                                                                                                                    421 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wiseman, Roo
Futreal, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Harshman, Keith D.
Shattuck-Eidens, Donna M.
Tavtigian, Sean V.
                                                                             Homo sapiens
                                                                                                                                                        linear
                                                                                                                                                                                                                                                                 202-962-4810
                                                                                                                             ĕ
                                                                                                                                                                                                                                                                                                                                                       UMBER: US 08/289,221
12-AUG-1994
                                                                                                                                                                        double
                                                                                                                                                                                                                                                                                                                           Jeffrey L
                                                                                                                                          DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MBER: US 08-308,104
16-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                        02-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alexander
              1.1%;
                                                                                                                                        (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Susceptibility Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Roger W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17q-Linked Breast and Ovarian Cancer
                                                                                                                                                                                                                                                                                                                                                                                                                     US 08/300,266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US 08/348,824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US 08/409,305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . Andrew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PCT/US95/10203
                                                                                                                                                                                                                                                                                                            28,957
Score 44.2; DB Pred. No. 0.11; 0; Mismatches
                                                                                                                                                                                                                                                                                               24884-109347
                            DB 5;
                            Length 421;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 15
PCT-US95-10220-24
                                                                                                                                                         CLASSIFICATION:
PRIOR APPLICATION NOMBER: US
APPLICATION NUMBER: US
FILING DATE: 07-JUN-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/409,305
FILING DATE: 24-MAR-1995
PRIOR APPLICATION DATA:
APPLICATION UNMER: US 08/348,824
FILING DATE: 29-NOV-1994
PRIOR APPLICATION DATA:
APPLICATION UNMER: US 08-308,104
FILING DATE: 16-SEP-1994
PRIOR APPLICATION DATA:
APPLICATION UNMERE: US 08-308,104
PRIOR APPLICATION DATA:
APPLICATION DATA:
IS 08/300,266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         equence 24, Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: USA
ZIP: 20005
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3050 AAGTICCGTCTCCTCC 3067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    237
                                                                                                           FILING DATE: 02-SEP-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          297 CAGTGGCGTGATCTCGNC 314
                                                  APPLICATION NUMBER: US 08/289,221
FILING DATE: 12-AUG-1994
TTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET: 120_
CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                              APPLICATION NUMBER: US 08/300,266 FILING DATE: 02-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCTACCTTTCCTTCCTTCCCTTCCTTTTCTTTCTTTCCTTTCCTTTCCTTTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTACTTCCTCCTCCTCCTGTTCCTGCCTTCTCTTCTATCCTGCAATTTCTCCCGAAT 2989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCTTNCCTTTCCCTCCCTTCCNCCTTCCTTTCCNTCTTTCCTTTCCTTTCCT 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTTTCTTTCCTTTCTTTCTTGACAGAGTCTTGCTCTGTCACTCAGGCTGGAGTG 296
                 E: Ihnen, Jeffrey ISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Application PC/TUS9510220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E: Venable, Baetjer,
1201 New York Avenue,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Wiseman, Roger W. Futreal, P. Andre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Harshman, Keith D.
Shattuck-Eidens, Donna M.
Tavtigian, Sean V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Skolnick, Mark H. Goldgar, David E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kamb, Alexander
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Swenson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yoshio
 NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P. Andrew
Method for Diagnosing a
Predisposition for Breast and Ovarian Cancer
85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Jeff
                                                                                                                                                                                                                                                                                                                                                                                                                                                      PCT/US95/10220
28,957
PR: 24884-109347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Howard, N.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            & Civiletti, LLP
Suite 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            236
```

```
밁
                         Š
                                                      밁
                                                                               Š
                                                                                                           밁
                                                                                                                                    QΥ
                                                                                                                                                                   밁
                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                   PCT-US95-10220-24
                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 100; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                          TOPOLOGY: lin
MOLECULE TYPE:
HYPOTHETICAL: N
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                               ORIGINAL SOURCE:
ORGANISM: Hom
                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 421 base pairs
TYPE: nucleic acid
                                                                                                                                                                                    TELECOMMUNICATION INFORMATION:
                         3050 AAGTICCGTCTCCTCC 3067
                                                                                 2990 CCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTC 3049
                                                                                                                                      2930 CTACTTCCTCCTCCTCCTGCTGCTTCCTGCCTTCTTCTATCCTGCAATTTCTCCCGAAT 2989
                                                                                                                                                                   117 TCCTTNCCTTTCCCTTCCCTCCCTTCCNCCTTCTTTCCTTTCCTTTCCTTTCCT 176
                                                      237
                                                                                                           177 GTCTACCTTCCTTCCTTCCTTCCTTTCTTTCTTTCTTTCCTTTCCTTTCTTT
297 CAGIGGCGTGATCTCGNC 314
                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                           ELEPHONE: 202-962-8300
                                                     CCTTTCTTTCCTTTCTTTCTTGACAGAGTCTTGCTCTGTCACTCAGGCTGGAGTG
                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                      DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                   double
                                                                                                                                                                                                                                       1.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                           24:
                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                       Score 44.2; DB Pred. No. 0.11;
                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                      DB 5;
                                                                                                                                                                                                                             98;
                                                                                                                                                                                                                                                    Length 421;
                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                          Gaps
                                                        296
                                                                                                             236
```

Search completed: May 20, 2003, 08:02:23
Job time: 277 secs

```
Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
        714.4
401.4
401.2
315.2
310.2
305.4
275.2
275.2
209.8
1183.6
1183.6
1184.6
98.2
                                                                                                                                                                                                                                                                                                                                                   Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  May 20, 2003, 06:43:09; Search time 816 Seconds (without alignments) 6537.583 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                                                                 Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  828747 segs, 660231138 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-081-408-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10:
11:
12:
14:
                                     10.
9.9.
7.9.
6.86.
7.78
7.86.
7.86.
7.86.
7.86.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Published_Applications_NA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /cgn2_6/ptodata/1/pubpna/PCTUS_FUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US0B_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US0B_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US0B_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US0B_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US10_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US10_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US10_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US60_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US60_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /cgn2_6/ptodata/1/pubpna/US06_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US07_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                              4040
4040
3006
2572
1051
2441
       444
411
397
364
388
413
405
254
471
471
382
                                                                                                                                                                                                                                                                                                                                                   DB
                                 10 US-09-919-497-1
US-09-917-800A-1473
US-09-918-995-30382
US-09-960-352-2153
US-09-960-352-2312
US-09-960-352-2312
US-09-960-352-2312
US-09-960-352-3313
US-09-960-352-3313
US-09-960-352-3313
US-09-960-352-35331
US-09-960-352-3534
US-09-918-995-352-3531
US-09-918-995-352-3531
US-09-918-995-352-3531
US-09-918-995-352-3531
US-09-918-995-352-3531
US-09-918-995-352-3531
                                                                                                                                                                                                                                                                             US-09-954-456-521
US-10-081-408-19
                                                                                                                                                                                                                                                                                                                 US-10-081-408-1
                                                                                                                                                                                                                                                                                                                                                   Ħ
                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _NEW_PUB.seq: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1657494
Sequence 19, Appli
Sequence 17, Appli
Sequence 173, Ap
Sequence 126, App
Sequence 30382, A
Sequence 2265, Ap
Sequence 2312, Ap
Sequence 3311, Ap
Sequence 5603, Ap
Sequence 35960, Ap
Sequence 3910, Ap
Sequence 3711, Ap
Sequence 3715, Ap
Sequence 7315, Ap
Sequence 7315, Ap
                                                                                                                                                                                                                                                                                                                                               Description
                                                                                                                                                                                                                                                                                                             Sequence 1,
                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                            1, Appli
521, App
```

ALIGNMENTS

```
GENERAL INFORMATION:

APPLICANT: Abrahms,n, Lars
APPLICANT: Nilsson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
CURRENT APPLICATION NUMBER: US/10/081,408
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: SE 0100625-3
PRIOR APPLICATION NUMBER: SE 01006272,247
PRIOR FILING DATE: 2001-02-23
PRIOR FILING DATE: 2001-02-28
NUMBER OF SEQ ID NOS: 20
CONTENT FILING DATE: 2001-02-28
                                                                                                                                                                                                                                                                                                          ; NAME/KEY: CDS
; LOCATION: (161)...(2449)
US-10-081-408-1
                                  Ş
                                                                           밁
                                                                                                             Š
                                                                                                                                                      В
                                                                                                                                                                                        Ş
                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 4040; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/10081408 Patent No. US20020160482A1
                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA
ORGANISM: Homo sapiens
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 4040
                  121 CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT
                                                                           61
                                                                                               61 GCCCCCCACCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG
                                                                                                                                                    CTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT
                                                                           GCCCCCCACCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTG
                                                                                                                                                                                                                             100.0%; Score 4040; ilarity 100.0%; Pred. No. 0; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                       BB
                                                                                                                                                                                                                                                                     9;
                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                     Length 4040;
                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                               Gaps
```

60

0

, io	00	- 4	. 0
5 5	241).	5 6
β 5	241	CAGGGTGGAGATIGGGGTGAACCCAGCCAGCTCCCCATTGCCCCTCTGTATCTCCCAG 30	0 0
Οy	301	GCCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGG	0
용	301	CCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAG	0
υγ	361	TTCTGACCCAGCGCTGGGGCCAGGGCTGGTGGATGCAGC 4	0
Ď	361	CTGACGGCTGTGATGCGCTTTCTGACCCAGCGCCTGGGGCCAGGGCTGGATGCAG	0
ν	421	TCGGACAACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGC 4	0
용	421	CAGGCCCGGCCCTCGGACAACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGG	0
g y	481 481	TGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCCACCTGCCCGGGAGGCACTGGCCAT 54	0 0
?	, ,	3	>
<u>В</u>	541		0
γo	601	ACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATC	0
В	601	CCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCC	0
Qy	661	AAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGA 7	0
<u></u>	2 0	CGACGCCCGTGCTGCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGA /	, ,
B '	721	GCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTCTACAAGCACCGGGGACGGAA 78	o (
QY.	781	CTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTG	0
DЬ	781	CCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTT 84	0
Qy	841	TGGCCTCTACTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACGACGTGGGCTTGGAGCT 90	ō
P	841	GGCCTCTACTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGG	ō
8 8	901	GCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCCGGACTATCCAGAAGGTGTTCTATCA 96	
	0 1	つうつうつき そうほうつう そうていていていていていていていていていていていていていていていていていていてい	, ر
B 2	961	AGGCCGCTACTACGACAGCCTGGCCCCAGCTGGAGGCCCAGTTTGAGGCCGGCC	20
Qy	1021	GGTGCTGATCCCAGACAATGGCACAGGTGGGTGCCTGGTCCCTGAAGTCCCCTGTGC	080
В	1021	GIG	080
γQ	1081	CCCGGGTCCAGGTCCCCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGG 11	40
g	1801	CCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGG	40
ΟУ	1141	AAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCC 12	00
В	1141	GTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTTGGCCTCGGAGCATTCAG	000
Qy	Ν	AAGGATCTTTGACGTTCGCTTCCAAGGAGAAGACTAGTTTATGAGATAAGCCTCCAAGA 12	
용		GGATCTTTGACGTTCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGA	6
γ	1261	GGCCTTGGCCATCTATGGTGGAAATTCCCCCAGCAGCAATGACGACCCGCTATGTGGATGG 1:	20

		_																				_												
Qy	Дb	Оу	Db Qy	מ	\$ \$	Db ·	Qy	DЪ	Qy	Db .	γQ	dd .	ο γ	Дb	Qy	, D	Оу	Дb	γQ	gg ;	χQ	DЬ	Qy	Db	νg	ДĎ	γo	Db	, Qy	dd	Qy	Dр	Ωy	₽b
2341	2281	2281	2221	ì	16	ũ	2101	2041	2041	œ	1981	92	1921	1861	1861	1801	1801	1741	1741	Ġ	1681	1621	1621	1561	1561	1501	1501	1441	1441	1381	1381	ω	1321	1261
GGACCAGGATGCTGGGGCCTGCGAGGTCAACCCCCTAGCTTGCCTGCC	TAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACCTTCCGAG	TATAACTTCTTTGACGAAGACCCCTCC	TGCAGAGGACATTCCTAACACAGTGACTGTGGGGAACGGCTTGGGCTTCTTCCTCCGACC 228	ACCATTGCTGGAAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACA 22	ວ ຄວ		TTCAATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATG	GAGAGGTACCAGCTGTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGCAGCGT 21	GAGAGGTACCAGCTGGCTGTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGCAGCGT 21		CTCAGCTTTGCTGGAGAGCCCGCTGCCCCAAAACAGCTCCATGGCGAGAGAGGCTTCAGCT		TACCTGGCCAGCAACCACAGCAACAAGTGGGGTCACCCCGGGGGCTACCGCATCCAGA	ACCT 19	CTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCT 19	CCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAA 186	CCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGG		GTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTT		GGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTC	ACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGGAAGTA 168	CGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAG	CTTGCTCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCCATAGAAAT 162	TTGCTCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAG	ACT	TACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCA	TTGTGTGTTTGAACAGAACCAGGGCCTCCCCCTGCGGCGACACCACTCAGATC	GCCTTTTGTGTGTTTGAACAGAACCAGGGCCTCCCCCTGCGGCGACACCACTCAGAT	CACTTCCTTT	GCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTG		CTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACT	
00	0	0	80	2 6		0	0	00	00	0	0	0	0	20	20	0	0	Ō	Ō	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

```
ρ
δ
                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                        B
                                                                                                                                                                      Ş
                                                                                                                                                                                  B
                                                                                                                                                                                           δÃ
                                                                                                                                                                                                      Вb
                                                                                                                                                                                                                  γQ
                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                밁
        õ
                      밁
                              δ
                                         뫄
                                                    δÔ
                                                                 B 6
                                                                                      В
                                                                                                  δÃ
                                                                                                               β. δ.
                                                                                                                                    밁
                                                                                                                                             QΥ
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                     B
밁
                                                                                                                                                                                                                                                                                                                                                                     2461
                                                                                                                                                                                                                                                                                                                                                                                           2401
                                                                                                                                                                                                                                                                                                                                                                                                      2401
                                                                                                                                                                                                                                                                                                                                              2521
                                                                                                                                                                                                                                                                                                                                                        2521
                                                                                                                                                                                                                                                                                                                                                                               2461
                                                                                                                                                                                                                                                                                                                                                                                                                 2341
                                                                                          3181
                                                                                                    3181
                                                                                                               3121
                                                                                                                                                           3001
                                                                                                                                                                                                                               2821
                                                                                                                                                                                                                                                     2761
           3421
                                                                   3241
                                                                             3241
                                                                                                                           3121
                                                                                                                                                                        3001
                                                                                                                                                                                  2941
                                                                                                                                                                                             2941
                                                                                                                                                                                                         2881
                                                                                                                                                                                                                                         2821
                                                                                                                                                                                                                                                                 2761
                                                                                                                                                                                                                                                                            2701
                                                                                                                                                                                                                                                                                      2701
                                                                                                                                                                                                                                                                                                 2641
                                                                                                                                                                                                                                                                                                                        2581
3421
                                  3361
                                             3301
                                                        3301
                                                                                                                                                 3061
                                                                                                                                                                                                                    2881
                                                                                                                                                                                                                                                                                                            2641
                                                                                                                                                                                                                                                                                                                                   2581
                                                                                                                                                                                                                                                                                                                                                                                         CTGTGCCCCCGACCTCCCTGCCTTCTCCCACGGGGCCTTCTCTCACAACTAGGCGGTCCT
                                                                                                                                                                                 GGGATGGGGCATGTGGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGG
GCCCCTACAACTCCAGCCAGCCAGCCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGA
                    TTTGGGGGTGCAATGATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGCAA
                                                                 CTCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTGA
                                                                                        CCAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCTGAGCTGGAAAGGATGCTTCTGCTC
                                                                                                                                                                                                                                                    TTCCCGAATCTTTTAGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACC
                                                                                                                                                                                                                                                                         CCCAGCCTGGAGCCGTGGCCGAGGGCTTCCCTAGATGGTTCCCTTTGTTGCTGTCTGGCT
                                                                                                                                                                                                                                                                                                GACACTGAACCTTGTTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCATGG
                                                                                                                                                                                                                                                                                                                                                                                                                TGTGTGTCGTTCCCTTGTGTCTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGTC
                                                                                                                                                                                                                              CCAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCTGAGCTGGAAAGGATGCTTCTGCTC
                                                                                                               TGTGTGTCGTTCCCTTGTGTCTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGTC
                                                                                                                                                                                           3000
                                                                                                                                                                                                                                                                                                                                 2640
                                            3360
                                                                  3300
                                                                             3300
                                                                                                              3180
                                                                                                                         3180
                                                                                                                                                                      3060
                                                                                                                                                                                                                                                                          2760
                                                                                                                                                                                                                                                                                      2760
                                                                                                                                                                                                                                                                                                2700
                                                                                                                                                                                                                                                                                                           2700
                                                                                                                                                                                                                                                                                                                       2640
                                                                                                                                                                                                                                                                                                                                                        2580
                                                                                                                                                                                                                                                                                                                                                                   2520
                                                                                                                                                                                                                                                                                                                                                                                          2460
                                                                                                                                                                                                                                                                                                                                                                                                     2460
                                                                                                                                                                                                                                                                                                                                                                                                                2400
          3480
                     3420
                                3420
                                                       3360
                                                                                         3240
                                                                                                    3240
                                                                                                                                     3120
                                                                                                                                                3120
                                                                                                                                                            3060
                                                                                                                                                                                  3000
                                                                                                                                                                                                        2940
                                                                                                                                                                                                                   2940
                                                                                                                                                                                                                              2880
                                                                                                                                                                                                                                         2880
                                                                                                                                                                                                                                                     2820
                                                                                                                                                                                                                                                               2820
                                                                                                                                                                                                                                                                                                                                             2580
                                                                                                                                                                                                                                                                                                                                                                               2520
```

```
δÃ
                                                                                                                                                                                                          δ
                                                   Ωy
                                                                                   B 8
                                                                                                                   δÃ
                                                                                                                                 ₽
                                                                                                                                         δõ
                                                                                                                                                   日
                                                                                                                                                                            밁
                                                                                                                                                                                    δÃ
                                                                                                                                                                                                 В
        Qy
                    B
                             QΥ
                                          DЬ
                                                               B 54
                                                                                                          뫄
밁
                                                                                                                                                                           3541
                                                                                                                                                      3601
          4021
                      3961
                                          3901
                                                                                      3781
                                                                                                           3721
                                                                                                                      3721
                                                                                                                                 3661
                                                                                                                                            3661
                                                                                                                                                                 3601
                                                                                                                                                                                      3541
                                                                                                                                                                                                  3481
                                                                                                                                                                                                             3481
4021
                               3961
                                                     3901
                                                                3841
                                                                           3841
                                                                                                          TTTCTCTAAAGGACTGGTTAAATCAATTCTGATACAGCCTTACAATACAATACAATAGTATGCAG
                                                                                                                                                      AGGTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAGAAACTTT
                                                                                                                                                                            ATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGCCTGGGT
     CCCAAAAAAAAAAAAAAAAA
                    AACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGG
                                                                                      AAGCCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTCAGAAAGGAGTAGAATATA
CCCAAAAAAAAAAAAAAAA
4040
          4040
                                                                                                 3840
                                                                                                                                                      3660
                                                                                                                                                                 3660
                                                                                                                                                                                       3600
                               4020
                                                                 3900
                                                                           3900
                                                                                      3840
                                                                                                                      3780
                                                                                                                                 3720
                                                                                                                                           3720
                                                                                                                                                                            3600
                                                                                                                                                                                                  3540
                                                                                                                                                                                                            3540
                                           3960
                                                     3960
```

RESULT 2
US-09-524-456-521
US-09-524-456-521
Sequence 521, Application US/09954456
Patent No. US20020115057A1
PATENT NO. US2002011505 For Identifying Anti-Cancer Therapeutic Agents
ITILE OF INVENTION: Process for Identifying Anti-Cancer Therapeutic Agents
ITILE OF INVENTION: Sets
FILLE REPERENCE: 689290-76
CURRENT FILLING DATE: 2001-09-18
PATENT PAPLICATION NUMBER: US/09/954,456
CURRENT FILLING DATE: 2000-09-18
PATENT PAPLICATION NUMBER: US/60/233,617
PATENT PAPLICATION NUMBER: US/60/234,052
PATENT PAPLICATION NUMBER: US/60/234,923
PATENT PATENT NUMBER: US/60/234,923
PATENT PAPLICATION NUMBER: US/60/235,637
PATENT PAPLICATION NUMBER: US/60/235,637
PATENT PAPLICATION NUMBER: US/60/235,637
PATENT PAPLICATION NUMBER: US/60/235,638
PATENT APPLICATION NUMBER: US/60/235,711
PATENT PATENT NUMBER: US/60/235,720
PATENT PATENT NUMBER: US/60/235,720
PATENT PATENT NUMBER: US/60/235,720
PATENT PATENT NUMBER: US/60/235,840
PATENT APPLICATION NUMBER: US/60/235,840
PATENT APPLICATION NUMBER: US/60/235,863
PATENT APPLICATION NUMBER: US/60/235,863
PATENT APPLICATION NUMBER: US/60/235,863
PATENT PATENT NUMBER: US/60/235,863
PATENT PATENT NUMBER: US/60/235,863

Using

```
WIMBER OF SEQ ID NOS: 2276
SOFTWARE: PatentIn version 3.0
SEQ ID NO 521
LENGTH: 4040
TYPE: DNA
ORGANIAM: Homo sapiens
US-09-954-456-521
                                                                                                                                                                                                                                                                                                                                                                                                                                                              γ
                                                          δõ
                                                                          В
                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
δõ
               ₽
                           Q
                                           В
                                                                                       δÃ
                                                                                                         밁
                                                                                                                     οy
                                                                                                                                                  Q
                                                                                                                                                                     В
                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 100.0%; Score 4039.6; Best Local Similarity 100.0%; Pred. No. 0; Matches 4039; Conservative 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                  181 CGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGG
 901
                                                            781
                                                                           721
                                                                                                          661
                                                                                                                        661
                                                                                                                                        601
                                                                                                                                                       109
                                                                                                                                                                    481
                                                                                                                                                                                                           481 TGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCTGCCCGGGAGGCACTGGCCAT
                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                              121
                                              781
                                                                                          721
                                                                                                                                                                                                                                                                                                                                                          181 CGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCTCCTTTGGATGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCT 180
                                                                                                                                                                                                                                                                                                                                                                                                                     TGGCCTCTACTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCT 900
                                           GCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAA 780
                                                                                                        TCACCCCTCCTACATGCGGGACGTGACTGTGGAGGGTCATGGAGGCCCCCTGCCCTATCA 660
                                                                                                                                                                                                                                 GCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCA 960
                                                                                                                        CCGACGCCCCGTGCTGCTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGA 720
                                                                                                                                      TCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCA
                                                                                                                                                                                                    DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4040;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                   540
                                                                                                                                                                                                                   540
                                                                                                                                      660
                                                                                                                                                                     600
                                                                                                                                                                                    600
                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                        720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

Qy	Дb	Qy	D Q	p 4	2 5	Q V	Dβ	Qy	DЬ	Qy	Db .	Qy	Дb	γQ	Дb	οy	DВ	οy	дb	Qy	Дb	ν	В	Qy	DЪ	Qy	90	Qy	Вр	οy	В	Qy	Db
1981	1921	1921	1861 1861			, ,	1681	1681	1621	1621	1561	1561	1501	1501	1441	1441	1381	1381	1321	1321	1261	1261	1201	1201	1141	1141	1081	1081	1021	1021	961	961	901
GCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGAGGCTTCAGCTG 20	TACCTGGCCAGCAACCACCACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGA	GTACCTGGCCAGCACCACGAGCAAGAGTGGGGTCACCCCCGGGGCTACCGCATCCAGAT 19	GCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCT 19	GCAGGTGACCCGGAA 1	GTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGT	GGTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCCGAGGATATGGTCTTTGT 18	CAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCACAGCGCCCACT	GGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTC	ACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTA 16	.CGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGT	CTTGCTCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAAT 16	TTGCTCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAA	CTACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGAGATCTATGTCCAC 15	TACTCGCACTACTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCA	TGCCTTTTGTGTGTTTGAACAGAACCAGGGCCTCCCCCTGCGGCGACACCACTCAGATCT 15	GCCTTTTGTGTGTTTTGAACAGAACCAGGGCCTCCCCCTGCGGGGACACCACTCAGATC	GCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGA 144	GCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTG	AGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACTT 13	GGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGTGGGGTGGACTGCCCCTACT	GCCTTGGCCATCTATGGTGGAAATTCCCCCAGCAGCAACGACCCGCTATGTGGATGG 13	GCCTTGGCCATCTATGGTGGAAATTCCCCCAGCAGCAATGACGACCCGCTATGTGGATG	AAGGATCTTTGACGTTCCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGA 12	GGATCTTTGACGTTCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAG	AAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCC 120	GTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGC	CCCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGG 114	CCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAG		GTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGGTCCCCTGAAGTCCCCCTGTG	GGAGGCCCAGTTTGAGGCCGGCCTG	GGCCGCTACTACGACAGCCTGGCCCAGCTGGAGGCCCAGTTTGAGGCCGGCC	
40	80	08	20		5 6	8	0	0	80	08	20	20	60	0	00	8	0	0	Ö	Ö	õ	0	0	0	0	0	0	0	0	0	0	0	

3120 3120	1 CCTCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCC 3	306	B 8
3060	1 ATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCT 3	300	g 4g
3000	1 TCCTCCTCCTGTTCCTGCCTTCTCTTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGAT 3	294	р. Q
2940 2940	1 ACATTCCCTCTCATCCAGGTCCTTTCCTGTCTCTCTCTCT	288	ρ δ
5880 0882	1 CCAGAGTAGGGTTGCCAGTCCTGCAAGTCCATAGCTGAGCTGGAAAGGATGCTTCTGCTC 2	282	β δ
2820 2820	1 TTCCCGAATCTTTTTAGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACC 2	, 276 276	B 5
2760	1 CCCAGCCTGGAGCCGTGGCCGAGGGCTTCCCTAGATGGTTCCCTTTGTTGCTGTCTGGCT 2	, 270	D Q
2700	1 GACACTGAACCTTGTTGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCATGG 2	264	β δ
2640 2640	1 CCTCCCTCGCATCCGCCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGGG 2	258	B 5
2580 2580	1 GCACTGGGCCGGCAGCCTGGTTCCCTCTTTCCTGTGCCAGGACTCTCTTTCTT	252	B 6
2520 2520	1 GGGATGGGGCATGTGGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGG 2	246	p Q
2460	1 CTGTGCCCCGACCTCCCTGCCTTCTCCCACGGGGGCTTCTCTCACAACTAGGCGGTCCT 2	240	p Q
2400	1 GGACCAGGATGCTGGGGCCTGCGAGGTCAACCCCCTAGCTTGCCTGCC	234 234	β. δ.
2340	1 CTATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGG 2	228 228	g d
280	1 TGCAGAGGACATTCCTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACC 2	222	B 8
220	GACCATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACA 2	216 216	D Q
160	TTTCAATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGA 2 	210	g S
100	GGAGAGGTACCAGCTGGCTGTGACCCAGCGGAAGGAGGAGGAGGAGCCCAGTAGCAGCAGCAGCGT 2	2041	B 5
040	1 GCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTG 2	198	В

	CCCAAAAAAAAAAAAAA 4040 	4021 4021	Ф
1020	TACATTTTGAATTTTGAACCATGTGAACTGTATTACCTATTCAAAATAAACAATAAATGGG 4 	3961 3961	DP QA
3960	GAGGGGAACCAGTAGGTTGAGGACAGGAGAGAGAGGGTCTTAACACTTACACCCTTTTG 3	3901	Оу
0068	AACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGG 3 	3841 3841	Qy Db
1840	TATA 3	3781 3781	Db Qy
1780	CTAAAAAATAATTGTATGTCTTTATATACTAATATGTAATAATCTTCAGGTGAAAAAGGC 3 	3721 3721	Qy Db
1720	TTTCTCTAAAGGACTGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCAG 3	3661 3661	Оy
660	AGGTCTGGATTGGGGATGGGGACAAAGAATAGCAAGAGATGAGAAACAACAGAAACTTT 3 	3601	Qу
600	GGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCTCCTG 3	3541 3541	Qy Db
540	ATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGCCTGGGT 3	3481 3481	Фр
480	GCCCCTACAACTCCAGCCACCCAGCCAGGGAGGGGCTGTCCAATCACATTCAGGCATGCGA 3	3421 3421	Db Qy
420	CAGCCTGTTTGGGAGGCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAA 3 	3361 3361	Оу
360	TTTGGGGGTGCAATGATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGCAA 3	3301 3301	Qy Db
300	CTCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTGA 3 	3241 3241	Оу
240 240	CTGGGGCTGGGTGTTTCAGGACAGCTGCTTCTGTGCATTTGTGTCTGCCTGC	3181	Дy
180	TGTGTGTCGTTCCCTTGTGTCTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGTC 3	3121 3121	Оу

RESULT 3
US-10-081-408-19
US-10-081-408-19
; Sequence 19, Application US/10081408
; Patent No. US20020160482A1
; GENERAL INFORMATION:
; APPLICANT: Abrahms,n , Lars
; APPLICANT: N11sson, Joakim

```
FITTLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001
CURRENT APPLICATION NUMBER: US/10/081,408
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: SE 0100625-3
PRIOR FILING DATE: 2001-02-23
PRIOR FILING DATE: 2001-02-24
PRIOR FILING DATE: 2001-02-28
NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 19
LENGTH: 3006
TYPE: DNA
ROANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
OTHER INFORMATION: Recombinant construct
NAME/KEY: CDS
LOCATION: (1)...(2994)
US-10-081-408-19
    Ş
                               밁
                                                      Ωy
                                                                                      밁
                                                                                                               Ş
                                                                                                                                               밁
                                                                                                                                                                         9
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local :
                                 1450
                                                                                          1390
                                                                                                                                                                                                          1270
                                                                                                                                                                                                                                                                                                                            1150
                                                                                                                                                                                                                                                                                                                                                                                     1090
                                                                                                                                                                                                                                                                                                                                                                                                                                             1030
                                                                                                                                                 1330
                                                                                                                                                                                                                                                                  1210
                                                                                                                                                                                                                                                                                                                                                        605
                                                                                                                                                                                                                                                                                                                                                                                                                  545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     970
                                                            905
                                                                                                                                                                                                                                                                                               665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         365 ACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGGCCAGGGCTGGTGGATGCAGCCCAG 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      790 GGTGGAGATGGGGGTGAACCCAGCCAGCCTCCCCATTGCCCCTCTGTATCTCCCAGTGCC 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       245
    965
                                                                                                                                                                            785
                                                                                                                                                                                                                                     725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Match 54.7%;
Local Similarity 99.9%;
les 2211; Conservative
                           GTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCAAGGC 964
                                                                                                                                                             GTGACAATGACCACGGCTCCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTTTGGC 844
                                                                                                                                                                                                      CCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAACCTG 784
                                                                                                                                                                                                                                                                                CCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCACCGA 664
                                                                                                                                                                                                                                                                                                                                                                                 TTCTTTGGCAGCCAACCCCAACGTGAGTGAGCTGGTGGTGGGGCCACTGCCTCAC 1149
                                                                                                                                                                                                                                                                                                                                                                                                   TTCTTTGGCAGGCAACCCCAGCCCAACGTGAGTGAGCTGGTGGTGGGGGCCACTGCCTCAC 604
                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCTGCCCGGGAGGCACTGGCCATCGTC 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCTACTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCTGCTA 1449
                                                                                                   CTCTACTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCTGCTA 904
                                                                                                                                                                                                                                                              CGCCCCGTGCTGCTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGAGCTG 1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGCCTTGGACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTGGAGATGGGGGTGAACCCAGCCAGCTTCCCCATTGCCCCTCTGTATCTCCCAGTGCC 304
                                                                                                                                                                                                                                                                                                                         CCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCACCGA 1209
                                                                                                                                            GTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTTTGGC 1389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGCCCAG 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 2209.2;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ښ
ښ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 3006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 909
                                                                                                                                                                                                       1329
                                                                                                                                                                                                                                                                                            724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

밁

δõ 밁 Ş 밁 οy

```
APPLICANT: MULTEY, George L.
APPLICANT: MULTEY, GEORGE T.
FILE OF INVENTION: PROGNOSTIC CLASSIFICATION OF
FILE REFERENCE: B0801/7225
CURRENT APPLICATION NUMBER: US/09/919,497
CURRENT FILING DATE: 2001-07-31
PRIOR APPLICATION NUMBER: US 60/221,735
PRIOR FILING DATE: 2000-07-31
PRIOR FILING DATE: 2000-07-31
NUMBER OF SEQ ID NOS: 100
SOFTWARE: PatentIn version 3.0
SEQ ID NO 1
LENGTH: 2572
TYPE: DNA
ORGANISM: Homo sapiens
US-09-919-497-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 4
US-09-919-497-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                        B
                                                                                                                                             В
                                                                                                                                                               δ
                                                                                                                                                                                                밁
                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                    밁
                                                          Ş
                                                                                                                                                                                                                                                                        Ş
             õ
                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1, Application US/09919497 Patent No. US20020106662A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                   Best Local Similarity Matches 1545; Conserv
                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2225
                                                                                                                                                                                             87
                                                                                                                                                                                                                                                 461
                                                                 401
                                                                                         195
                                                                                                                                              135
                                                                                                                                                                                                                           221
                                        255
                                                                                                                                                                      281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGGACATTCCTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTAT
                                                                                        AACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGAGACC
 TTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCT
                                                                                                                                           TGCCCCTGTATCCCATAGGGCCCAGCCCTGGCCACAGCCTGGCCAGAGCCAGCTGTTT
                                                                                                                                                             TGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCCCCGACCTCCCTGCCTTCTCCCACGGGGGCTTCTCTCACAACTAGTGAGTC 3003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCCCGACCTCCCTGCCTTCTCCCACGGGGGCTTCTCTCACAACTAGGCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATCAGAATGACCCTTGGGCCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGAGACC
                                                      CCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTCGGACAACTGTGTCTTCTCAGTGGAG
                                                                                                                                                                                                GCCTATGTTTTGCTGACCAGCCCAGGTGGTT------CCAGCCAGCCTCCCCAC
                                                                                                                                                                                                                          GTTTGTGTCCTGCTGGTGGGCAGGGGGTGAAGATGGGGGTGAACCCAGCCTTCCCCAT 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGTACCAGCTGGCTGTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGCAGCGTTTTC
                                       CCAGGGCTGGTGGACGCAGCCCAGGCTCAGCCCTCGGACAACTGCATCTTCTCAGTGGAG
                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                               25.2%;
                                                                                                                                                                                                                                                                                                Score 1017.8; DB 10
Pred. No. 8.5e-294;
"Mamatches 637;
                                                                                                                                                                                                                                                                                                                           DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              읶
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ENDOMETRIAL CANCER
                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                    105;
                                                                                                                                                                                                                                                                                                                              2572;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2458
                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2164
                                                               460
                                                                                                                 400
                                                                                                                                                                     340
                                                                                                                                                                                                134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2649
                                       314
                                                                                         254
                                                                                                                                             194
                                                                                                                                                                                                                                                    86
                                                                                                                                                                                                                                                                                                    4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                Q
                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                        Š
 밁
                    Ş
                                                   B
                                                                      Ş
                                                                                                     В
                                                                                                                              Ş
                                                                                                                                                       밁
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                            1181
                                                                                                                                                                                                                                                                                                                                                                                                                                               1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1001
                                                                                                                                                                                                                                                                1089
                                                                                                                                                                                                                                                                                                                   1029
                                                                                                                                                                                                                                                                                                                                                                   969
                                                                                                                                                                                                                                                                                                                                                                                                                      909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        941 ATCCAGAAGGTGTTCTATCAAGGCCGCTACTACGACAGCCTGGCCCAGCCCAGGCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGTGGTGGGGCCACTGCCTCACCCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCAT
CGGCGACACCCACTCAGATCTCTACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTG
                                                                                                  GCAGTCCAGCTGCTTCCAGGGGCTGTGTGTATTTGAGGAAGCCCAGGGACTGCCCCTT
                                                                                                                                                                      GGGGTGGACTGCCCCTACTTGGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAG
                                                                                                                                                                                                                        ACGACCCGCTATGTGGATGGAGGCTTTGGCATGGGCAAGTACACCACGCCCCTGACCCGT
                                                                                                                                                                                                                                                                               TATGAGATAAGCCTCCAAGAGGCCTTGGCCATCTATGGTGGAAATTTCCCCCAGCAGCAATG
                                                                                                                                                                                                                                                                                                                               CTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGTTCGCTTCCAAGGAGAAAGACTAGTT
                                                                                                                                                                                                                                                                                                                                                                                TTTGAGGCCGGCCTGGTGAATGTGGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCCAGCAGGTCTTCTACCTTGGGCACTACTATGCAGACTTGGGCCAGTTGGAACGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACCACGTGGGCTTGGAGCTGCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGGAACGAACTACCTGGATTGGCCTCTACCATAACATCTCAGGGGTTGGTCTTTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGGACCGGGCCACCTGGTTTGGCCTCTACTACAACATCTCGGGCGCCTGGGTTCTTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCAACTACAATGGCTCTACCCTGGCAGCTGTGCATGCCACCCCTCGGGGCTTGCGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TACAAGCACCGGGGACGGAACCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGCATCTGAAAGATGTGGAGCTACCCAAGGC-----ACCCATCTTCCTGTCGTCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGATGATCTTCAACAGAGAGCTGCCCCAGGCTTCTGGGCTTCTCCACCACCACTGTTGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCTGTTCCAAGAGTACCTGGACATAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGTGGTGGGGCCGCTCACCCCTCGTACATGCGGGATGTGACTGTGGAGCGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCAGCTGCCCCCCAAGGCTGCAGCCCTGGCCCACCTGGACAGGGGGGAGCCCCCCACCT
                                                                                                                                                                                                            CTGACTCGCTATTTGGATAGCAGCTTTGGACTCGGCCGTAACAGCCGAGGCTTGGTGCGG
                                                                                                                                                                                                                                                              TATGAAGTCAGTGTCCAGGAGTGTGTATCTATCTATGGTGCCGATTCACCCAAGACGATG
                                                                                                                                                                                                                                                                                                                  CATGGGGTGTTCAGCGGCCTGAGGATTTTTGATGTTCGGTTCCAGGGTGAGCGAATAGCC
                                                                                                                                                                                                                                                                                                                                                                 TTTAAGTCTGGCCGGTTGGAAGTGGTTAGAGTCCCTCTACCTCCACCAAATGGAGCTTCA
                                                    CGAAGGCACCACAATTACCTTCAAAATCATTTCTATGGTGGTTTGGCCAGCTCAGCCCTT
                                                                                                                              GCCCCAAGACAATACGTGATGCCTTTTGTGTGTTTGAACAGAACCAGGGCCTCCCCCTG
                                                                                                                                                       GGAGTGGACTGCCCCTATCAAGCCACGATGGTGGACATCCATATATTAGTGGGCAAAGGG
                                                                                                                                1480
                                                                                                                                                                                                                                                                1148
                                                                                                                                                                                                                                                                                        1300
                                                                                                                                                                                                                                                                                                                   1088
                                                                                                                                                                                                                                                                                                                                            1240
                                                                                                                                                                                                                                                                                                                                                                   1028
                                                                                                                                                                                                                                                                                                                                                                                                                                               1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1000
                            1600
                                                                              1540
                                                                                                        1328
                                                                                                                                                           1268
                                                                                                                                                                                     1420
                                                                                                                                                                                                                                       1360
                                                                                                                                                                                                                                                                                                                                                                                            1180
                                                                                                                                                                                                                                                                                                                                                                                                                        968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              434
    1448
                                                                                                                                                                                                              1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              760
```

```
RESULT 5
US-09-917-800A-1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                        γQ
                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                  밁
APPLICANT: Mendrick, Donna
APPLICANT: Porter, Mark
APPLICANT: Johnson, Kory
APPLICANT: Castle, Arthur
APPLICANT: Elashoff, Michae
APPLICANT: Gene Logic, Inc
                                                                               Sequence 1473, Application US/09917800A Patent No. US20020119462A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1689
                                                                                                                                                                                                                                      2148
                                                                                                                                                                                                                                                                                                                                                                                                                                     2195
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1715
                                                                                                                                                                                  2208
                                                                                                                                                                                                                                                                                                                                                                                                         1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1509
                                                                                                                                                                               GCTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AACGGCGTGGGCTTÅTTCCTCCGACCTATAACTTCTTTGACGAAGACCCCTCCTTCTAC
                                                                                                                                                                                                                                                                                                                                                                                                    ACAGCCAGCTTCCTGCACATTCCCCATGCCGAGGACATCCCAAACACAGTGACTCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                  ACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTCCTAACACACAGTGACTGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGGAGGAGCCCAGTAGCAGCAGCGTTTTCAATCAGAATGACCCTTGGGCCCCCACTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAGGAGCAGCCGCCTTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTGGTGCTACTGGG-----AAGTACGGGAACCAAGTGTCAGAGCACACCCTGGGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCAGTGGGGCCATAGAAATACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTC 1660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGGAGGAGTCACAGAGCAGTAGCATCTATCACCAGAATGACATCTGGACACCCCACAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGGGAAGCCCCCTACCCCGCTACCTCTACCTGGCTAGCAACCAGACTAATGCGTGGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTACAGCGCCCACAGCTGACTCGGCAGGTCCTGGGAAAGGAGGACCTGACAGCTTTTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGTAGCTGAAGACGTGGTTTTAAACCTGTGGCTGCCCCTGGAACCCGGAGCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCCACACCCACAGCGCCCACTTCAAGGTGGATCTGGATCTAGCAGGACTGGAGAACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ANAGGGGGAGAGGAGGGCCTCCTCTTTGGGAACCGTGTGGGGGAAAGAGTGCTGGGAACG
                                                                                                                                                                                                                                                           CTAGCTTGCCTGCCCAGGCTGCTGCCTGTGCCCCGACCTCCCTGCCTTCTCCCACGGG
                                                                                                                                                                                                                                                                                                          TCTGCCGACTCCATCTACTTCCGAGGGGACCAGGATGCTGGGGGCCTGCGAGGTCAACCCC
                                                                                                                                                                                                                                                                                                                                               AACAGAGTTGGCTTCTTGCTCCGACCCTATAACTTCTTTGATGAGGACCCCCTCCATCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCAAATGGGGCACTTGAAGGGCGGGTCCATGCCACGGGTTATATCAACACAGCTTTCCTG
                                                                                                                                                                                                          GGCTTCT
                                                                                                                                                                                                                                   GTGGCCTGCCTCCCGACCTGGCAGCCTGTGTCCCGGACTTACCCCCTTTCTCTTACCAC
                                                                                                                                                                                                                                                                                        {	t TCCCCTGGCAGTGTGTACTTTGAGAAGGGCCAGGATGCTGGGCTCTGCAGCATCAATCCT}
 Johnson, Kory
Castle, Arthur
Elashoff, Michael
Gene Logic, Inc.
                                                                                                                                                                                2214
                                                                                                                                                                                                         2441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----TACCAGCTTGTGGTGACCCAGAGAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1508
                                                                                                                                                                                                                                                                                                                                              2087
                                                                                                                                                                                                                                                                                                                                                                         2314
                                                                                                                                                                                                                                                                                                                                                                                                     2027
                                                                                                                                                                                                                                                                                                                                                                                                                               2254
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1628
```

```
Ω
                                                                                                             밁
                                                                                                                                          Ş
                                                                                                                                                                            B
                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                         DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; NAME/KEY: misc_feature
; LOCATION: (1)..(1051)
; OTHER INFORMATION: n = a or c
US-09-917-800a-1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: US 60/222,040
PRIOR FILING DATE: 2000-07-31
PRIOR APPLICATION NUMBER: US 60/222,880
PRIOR FILING DATE: 2000-11-02
PRIOR APPLICATION NUMBER: US 60/290,029
PRIOR FILING DATE: 2001-05-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE REFERENCE: 44921-5038-US
CURRENT APPLICATION NUMBER: US/09/917,800A
CURRENT FILING DATE: 2001-07-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: PatentIn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE: OTHER INFORMATION: Genbank Accession No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1051
TYPE: DNA
ORGANISM: Rattus norvegicus
                621
                                                486
                                                                             561
                                                                                                               426
                                                                                                                                             501
                                                                                                                                                                             366
                                                                                                                                                                                                                                                                        381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141 CTGTCCCTCTTCGTGGGAAAATGAACCAGAAGACAATCCTCGTGCTCCTCATTCTGGCCG 200
                                                                                                                                                                                                          441
                                                                                                                                                                                                                                            306
                                                                                                                                                                                                                                                                                                          246
                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                         261
                                                                                                                                                                                                                                                                                                                                                                                                                                         126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 60/292,336
FILING DATE: 2001-05-22
APPLICATION NUMBER: US 60/295,798
FILING DATE: 2001-06-06
APPLICATION NUMBER: US 60/297,457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US (FILING DATE: 2001-07-09 R OF SEQ ID NOS: 1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 2001-06-13
APPLICATION NUMBER: US 60/298,884
FILING DATE: 2001-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 60/290,645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OF INVENTION: Molecular Toxicology Modeling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGTCCAGCCTCAAGGAACAATGACCCAGAAGACCACCCTAGTGCTCCTCGCCCTGGCTG 125
ACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCTGTTCC
                                                                CCCAGCCCAACGTGAGTGAGCTGGTGGTGGGGCCACTGCCTCACCCCTCCTACATGCGGG
                                                                                                                                                                                                                                                         TTCTGACCCAGCGCTGGGGCCAGGGCTGGTGGATGCAGCCCAGGCCCAGGCCCTCGGACA 440
                                                                                                                                                                                                                                                                                                                        CTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGCTGACGGCTGTGATGCGCT 380
                                                                                                                                                                                                                                                                                                                                                                                                       TCATCACCATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGGCAGGGGTGGAGATGGGGGTG
                                                                                                          ACTGTGTCTTCTCAGTAGAGTTGCAGCTGCCTGCCAAGGCTGCAGCCCTGGCCCACCTGG
                                                                                                                                                                                                                                                                                                                                                                     GACTGAGCCAACCTCTTCATTGCCCTTCCGTTCTTCCTAGCGTCCAGCCCCAGACACACT 245
                                                                                                                                                                                                                                       TTCTGATCAAGCACCTGGGGCCAGGGCTGGTGGATGCAGCCCAGGCTCGACCCTCGGACA
                                                                                                                                                                                                                                                                                                         CTGGCCAGAGCCAGCCGTTTGCAGACCTGAGCCCTGAGGAGCTGACAGCTGTGATGAGCT 305
                                                                                                                                                                                                                                                                                                                                                                                                                                       TCATCACCATCTTCGCTTTGCTTTGCTTGCTAGCTGGCAGGAGCGGAGATGGGGGCA 185
                                           CCAAGCCTAATGTGAGCGAGTTGGTGGTGGGGCCCCTGCCTCACCCCCTCATACATGCGGG
                                                                                                                                                                                                            ACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       811;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17.7%;
ilarity 82.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-06-06
2001-08: US 60/297,457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001-05-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/303,459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 714.4; DB 10;
Pred. No. 4.1e-203;
5; Mismatches 169;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US20020119462A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                680
                                                                                                            485
                                                                                                                                            560
                                                                                                                                                                            425
                                                                                                                                                                                                        500
                                             545
```

밁

546

ATGTGACTGTGGAGCGTCATGGCGGCCCCCCTGCCCTATTACCGGCGTCCTGTGCTGACCA

```
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Ebner, Reinhard
TITLE OF INVENTION: Cancer Gene Determination and
TITLE OF INVENTION: Cancer Gene Determination and
TITLE OF INVENTION: Sets
FILE REFERENCE: 689290-74
CURRENT APPLICATION NUMBER: US/09/962,832
CURRENT FILING DATE: 2001-09-25
PRIOR APPLICATION NUMBER: US/60/235,077
PRIOR APPLICATION NUMBER: US/60/235,280
PRIOR APPLICATION NUMBER: US/60/235,280
PRIOR APPLICATION NUMBER: US/60/235,280
PRIOR APPLICATION NUMBER: US/60/235,280
PRIOR FILING DATE: 2000-09-25
NUMBER OF SEQ ID NOS: 259
SOFTWARE: PatentIn version 3.0
SEQ ID NO 126
LENGTH: 2441
TYPE: DNA
ORGANISM: Homo sapiens
US-09-962-832-126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 6
US-09-962-832-126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
 밁
                          δ
                                                                 밁
                                                                                          Ş
                                                                                                                                   밁
                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 126, Application US/09962832 Patent No. US20020110821A1
                                                                                                                                                                                                     Query Match 10.5%;
Best Local Similarity 52.8%;
Matches 1099; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              741
                                                                                                                                     160
                               423
                                                                   220
                                                                                                 363
 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGGCGCTGGGTTCCTTCCTGCACCACGTGGGCCTTGGAGCTGCTAGTGAACCACAAAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTTTGGCCTCTACTACAACATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGAGTATCAGGATATTCAGGAGATGATCTTTCACAGAGAGCTGCCCCAAGCGTCTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TACAGTTCTATCCCCAAGGCCCCCG 1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACCGGACCTGGTGACAATGACCACGG
                                                                                                                                   CCTCCCGGGGACTCTGCCCAGGAAGGCAGGGGTGTTTTCAGACCTAAGCAACCAAGAGC 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCARTTYCAYCCNGARGGNCCNMG 1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGGCACAGGTGGGTCCTGGTCCCTGAAGTCCCCCTGTGCCCCCCGGGTCCAGCTCCCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGCCCAGCTGGAGGCCCAGTTTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCCCCGTGGTTTGCAATCAGGGGACCGGGCCACCTGGTTTGGCATATATTACAATCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCTCCATCACTGTTGCTTCTACAAACGCCAAGGACACAACCTGCTAAAAATGACTACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGAGCTGCCCCAGGCTTCTGGGC
                                                                                                                                                                     CCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGC 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGACTCAGCTGGAGGACATGTTTGAGGCTGGCCTGGTGAATGTGGTTTTGGTCCCAGACA
 CCACCATGGCCAAGAACACCGTGTTTCTCATCGAGATGCTGCTGCCCAAGAAGTACC
                 AGGCCCGGCCCTCGGACACTGTGTCTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTG 482
                                                                                                 TGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGCCC 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGGCACAGGTGGGTCCTGGTCTCTGAAGTCTTCAGTGCCACCAGGCCGAGCTCCTCCTC
                                                                 TGAAGGCAGTGCACAGCTTCCTCTGGTCCAAGAAGGAGCTGAGGCTGCAGCCCTCCAGTA 279
                                                                                                                                                                                                     Score 422.2; DB 10;
Pred. No. 2.9e-115;
0; Mismatches 918;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and Therapeutic Screening Using Signatu
                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                      66;
                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  740
339
                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                 밁
                                            δÃ
                                                                                 В
                                                                                                              Ş
                                                                                                                                                   B
                                                                                                                                                                                 Ş
                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1020
                 1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                340 ATGTGCTGAGGTTTCTGGATAAAGGTGAAAGGCATCCTGTGCGGGAAGCCCGTGCCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGCCCTGGCTCACTTGGACAGGGGAGGCCCCCCACCTGCCCGGGAGGCACTGGCCATCG
                 TTGAAATGCCCACAGGGGTGCCCCTTCGGCGGCACTTTAATTCCAACTTTAAAGGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGTGGTGCTGATCCCAGACA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCTCGTGGATCATGGGAGCACAGATGCTGGGCACTGGGCCGTGGAGCAGGTGTGGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTTCTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGGCCTCTACTACAACATCTCGGGGGCTGGGCTTCTTCCTGCACCACGTGGGCTTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCTGCATCAGTTCTTCCTCAATACCACAGGCTTCTCATTCCAAGACTGCCATGACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCTGCCCCAGGCTTCTGGGCTTCTCCACCCACTGTTGCTTCTACAAGCACCGGGACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGACGCCCCGTGCTGTTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCCCTGCTACATGCGAGCACTGTCCCCCCAGGCCTGGGTACCAGTCCTCCTGGGCATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCCCTCCTACATGCGGGACGTGACTGTGGAGC - - - GTCATGGAGGCCCCCTGCCCTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTTCTTTGGTGACCAGGAGCATCCCAATGTCACCGAGTTTGCTGTGGGGCCCCTGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGAGGGCCTTGGCCATCT 1274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGGGAAGTTCTATGGGAGCCCCAGAGGAACTGGCTCGGAAGTATGCAGATGGAGAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTATCATACAGCGCTATGTAGAAGGC----TACTTTCTGCACCCCACTGGGCTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCTGGTGACAATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCCCATCTCCACAGCAGAGTATGCCCTCCTCTACCACCCCTGCAGGAAGCCACCAAGC
                                                                                                                                                                   GCAAGTACACGCCCCTGACCCGTGGGGTGGACTGCCCCTACTTGGCCACCTACGTGG 1394
                                                                                                                                                                                                                        ATGGAGGACACACACCTGCAGGCATGCAGACCAAGTACCTCGATGTCGGCTGGGGCCTGG
                                                                                                                                                                                                                                                                                        TGCACTTCGGCGGAGAGCGCATTGCCTATGAGGTCAGCGTGCAAGAGGCAGTGGCGCTGT
                                                                                                                                                                                                                                                                                                                                                            ACGGCGGCTGGAGCTTTGCCTTCCGGCTGCGCTCCTTCGGGCTGCAGGTCCTGAACG
                                                                                                                                                                                                                                                                                                                                                                          CCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCCAAGGATCTTTGACG 1214
                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCCGCTTGGTCCAGCCCCACGGCCCTCGCTTCAGGCTGGAGGGCAACGCTGTGCTCT 105:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           -CCCTCTACAGTTCTATCCCCAAGGCCCCCGCTTCAGTGTCCAGGGAAGTCGAGTGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGGTCCCTGAAGTCCCCTGTGCCCCCGGGTCCAGCTCC--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGTGGTGGTCCTGGAGGACCCGCTGCCTGGGGGGCAAGGGGCATGACAGCACAGAGGAGC
                                               TIGAACAGAACCAGGGCCTCCCCCTGCGGCGACACC-----ACTCAGATCTCTACT 1505
                                                                                                               ACTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGATGCCTTTTGTGTGT 1454
                                                                                                                                                   GCAGCGTCACTCATGAGTTAGCCCCCGGCATCGACTGCCCGGAGACCGGCCACCTTCCTGG
                                                                                 ACACTTTCCACTACTATGATGCCGATGACCCGGTCCATTATCCCCGAGCCCTCTGCCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----ATGGCACAGGTGGGT 105
                                                                                                                                                                                                                                                                                                                                                            1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             779
                                                                                                                                                                                                                                                                                          1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  459
                                                                                                                                                                                                                          1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              579
                 1413
```

```
Sequence 30382, Application US/09918995

Publication No. US20030073623A1

GENERAL INFORMATION:
APPLICANT: Hyseq, Inc.
TITLE OF INVENTION: NOVEL NUCLEIC ACID SEQUENCES OBTAINED
TITLE OF INVENTION: FROM VARIOUS CDNA LIBRARIES
FILE REFERENCE: 20411-756
CURRENT APPLICATION NUMBER: US/09/918,995
CURRENT FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US/09/235,076
PRIOR FILING DATE: 1999-01-20
NUMBER OF SEQ ID NOS: 38054
SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                  RESULT 7
US-09-918-995-30382
                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                  밁
SOFTWARE: Fast
SEQ ID NO 30382
                                                                                                                                                                                                                                                                                                                                                  2194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1594
                                                                                                                                                                                                                                                                                                                                                                  ATAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTC 2325
                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGAGGACATTCCTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGGCTTCAGCTGGGAGA 2045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCTGGATGTGGCAGGCACCAAGAACAGCTTCCAGACACTGCAGATGAAGCTAGAAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCAACTTCTTCCCAGAGGACCCCTCCCTGGCATCCAGAGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATCAGAATGACCCTTGGGCCCCCCACTGTGGATTTCAGTGAGTTCAT---CAACAATGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGTACCCCCTGGCAGTGACCAAGTACCGGGAGTCGGAGCTGTGCAGCAGCAGCATCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCATGGCCGACCAGGTGCTGCCCCCAGGCTGGCAGGAGGAGGAGGCCATCACCTGGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGAAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTCAAGGTGG 1745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCCATAGAAATACGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCACCTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                      CAGAGGACATTCCCAACACACCACACCTGGGAACTCCGTGGGCTTCCTGCTCCGGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACATTGAAAATGAGGACCTGGTGGCCTGGGTGACGGTTCCTGCACATCCCCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCAGAACGACCCCTGGCACCCGCCCGTGGTCTTTGAGCAGTTTCTTCACAACAACGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTACCAGCTGGCTGTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGCAGCGTTTTCA 2105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTACCAGCCCCAGGAGAACCCCTGGGGCCACAAGCGCAGCTACCGCCTGCAGATCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGCCAGCAACCAGCAAGCAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCTCA 1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTCCTGGGAGCGCCAGGCGGCCTTCCGCTTCAAAAGGAAGCTGCCTAAGTACCTGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCACCAACCCCTGGAGCCCCAAGACACCGCGTGGTCCAGCCAACTCTGGAGCAGACGCAGT 1773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCA 1805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGA 1685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACAATTATGATTACATTTGGGACTTTATCTTCTACCCCAACGGGGTGATGGAGGCCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCAACTTCTATGCGGGGCTGAAGGGCCCAGGTGCTGGTGCTGCGGACAACTTCAACTGTCT
                                                                                                                                                                                                                                                                                                                                            2236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1713
                                                                                                                                                                                                                                                                                                                                                                                                                        2193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2222
```

```
APPLICANT: Tao, Nengbing
APPLICANT: Byatt, John C.
APPLICANT: Mathialagan, Nagappan
TITLE OF INVENTION: NUCLEIC ACID AND OTHER MOLECULES ASSOCIATED WITH LACTATION /
TITLE OF INVENTION: MUSCLE AND FAT DEPOSITION
FILE REFERENCE: 16511.006/37-21(10298)C
CURRENT APPLICATION NUMBER: US/09/960,352
CURRENT FILING DATE: 2001-09-24
NUMBER OF SEQ ID NOS: 15112
SEQ ID NO 6153
LENGTH: 444
TYPE: DNA
ORGANISM: Bos taurus
OTHER INFORMATION: Clone ID: 26-LIB34-078-Q1-E1-G9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; FEATURE:
; NAME/KEY: misc_feature
; LOCATION: (1)...(459)
; OTHER INFORMATION: n =
US-09-918-995-30382
Ş
                                                                                                                                                                                                                                                                                                                                                         US-09-960-352-6153

Sequence 6153, Application

Patent No. US20020137139A1

GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                              Query Match
Best Local Similarity
Matches 360; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                        APPLICANT: Warren,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1061
1293 CAGCAATGACGACCCGCTATGTGGATGGAGGCTTTGGCATGGGCAAGTACACCACGCCCC 1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1001 TTTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGG 1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           821 GGGGACCGGGCCACCTGGTTTGGCCTCTACTACAACATCTCGGGCGCGCTGGGTTCTTCCTG 880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCCGCTTCAGTGTCCAGGGAAGTCGAGTGGCCTCCTCACTGTGGACTTTCTCCTTTTGGC 1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGAAGTCAGTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGTTCCCCTTCCAAGGGGAGAGGGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGTTCGCTTCCAAGGAGAAAGACTAGTT 1240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCCAGAAGGTGTTCTATCAAGGCCGCTACTACGACAGCCTGGCCCAGCTGGAGGCCCAG 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACCACGTGGGCTTGGAGCTGCTAGTGAACCACAAGGCCCTTGACCCTGCCCGCTGGACT 940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATGAGATAAGCCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCCTGAAGTCCCCTGTGCCCCCGGGTCCAGCTCCCCCTCTACAGTTCTATCCCCAAGGC 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTGAGGCCGGCCTGGTGAATGTGGTGCTGATCCCAGACAATGGCACAGGTGGGTCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCCAGAAGGTGTTCTATCAAGGCCGCTACTATGACAGCCTGGCCCCAGCTGGAGGCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCCTGAAGTCCCCTGTGCCCCCGGGTCCAGCTCCCCCTCTGCAGTTCCATCCCCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                          Wesley
                                           7.8%;
82.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A,T,C
                                                                                                                                                                                                                                                                                                                                                                                         US/09960352
                            Score 315; DB
Pred. No. 1.2e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 401.4; DB 9;
Pred. No. 1.5e-109;
0; Mismatches 22;
                                             DB 10;
.2e-83;
                                                              Length 444;
                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                0
```

```
GENERAL INFORMATION:

APPLICANT: Warren, Wesley C.

APPLICANT: Tao, Nengbing

APPLICANT: Byatt, John C.

APPLICANT: Mathialagan, Nagappan

TITLE OF INVENTION: NUCLEIC ACID AND OTHER MOLECULES ASS

TITLE OF INVENTION: MUSCLE AND FAT DEPOSITION

FILE REFERENCE: 16511.006/37-21(10298)C

CURRENT APPLICATION NUMBER: US/09/960,352

CURRENT FILING DATE: 2001-09-24

NUMBER OF SEQ ID NOS: 15112

SEQ ID NO 2265

LENGTH: 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 9
US-09-960-352-2265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                   Ş
                                                                                                                                                                                   밁
                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                             ; ORGANISM: Bos taurus
; OTHER INFORMATION: Clone ID: 10-LIB34-026-Q1-E1-C5
US-09-960-352-2265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                            Š
                                                            밁
                                                                                   õ
                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2265, Application US/09960352 Patent No. US20020137139A1
                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 348; Conserv
                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130
                                                                                                                                                        907
                                                                                                                                                                                                      847 CTACTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACGTGGGGCTTGGAGCTGCTAGT 906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATTCCTCTTTGGTGCTACTGGGAAGTACCGGAACCAAGTGTCAGAGCACACCCTGGGCA 1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGACCCGTGGGGTGGACTGCCCCTACTTGGCCACCTACGTGGACTGGCACTTCCTTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCAATGCTCACTCGCTATATGGATAGTGGCTTTGGCATGGGTTACTTCGCCACACCCC
                                                                                                                                         GAACCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCAAGGCCG
                                                                                                                                                                                     CTACTATAACATCACAAAGGGTGGGCCTTACCTGCACCCCGTGGGGGTTGGAGCTTCTGGT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGTCCACACCCACA 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGTCCACACCCACA 1727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCTTCTACCCCAATGGGGCCATAGAAGTCAAATTGCATGCCACGGGCTACATCAGCTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCTTCCACCCCAGTGGGGCCATAGAAATACGATTCTATGCCACGGGCTACATCAGCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGTGCTGGTCGTCAGATCTATGTCCACCTTGCTCAACTATGACTATGTCTGTGGGATACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGTCCCAAACCCCCAAGACACTACATGATGCCTTTTGTGTGTTTGAGCAGAACAAGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTCCCAGGCCCCAAGACAATACGTGATGCCTTTTGTGTGTTTTGAACAGAACCAGGGCC 1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGATTCGTGGCGTAGACTGCCCTTACCTGGCCACCTACATGGACTGGCACTTCGTTGTGG
AGACCATAAGGCTCTGGACCCTGCCGATTGGACCGTCCAGAAGGTGTTCTTTCAAGGCCG
                                                                            CTACTATGAAAATCTGACCCAGCTGGAGGAGCAGTTTGAGGCTGGCCAGGTGAATGTGGT
                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                              7.78;
84.78;
                                                                                                                                                                                                                                              Score 310.2; DB 10;
Pred. No. 3.1e-82;
0; Mismatches 63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ASSOCIATED WITH LACTATION
                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        69
                              1086
                                                                                           1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       309
                                                                                                                         120
                                                                                                                                                      966
                                                                                                                                                                                                                                                 0,
```

```
APPLICANT: Warren, Wesley C.
APPLICANT: Tao, Nengbing
APPLICANT: Byatt, John C.
APPLICANT: Byatt, John C.
APPLICANT: Mathialagan, Nagappan
TITLE OF INVENTION: NUCLEIC ACID AND OTHER MOLECULES ASSITILE OF INVENTION: MUSCLE AND FAT DEPOSITION
FILE REFERENCE: 16511.006/37-21(10208)C
CURRENT APPLICATION NUMBER: US/09/960,352
CURRENT APPLICATION STATE CONTROL OF SEQ ID NOS: 15112
SEQ ID NO 2312
LENGTH: 397
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; ORGANISM: Bos taurus ; OTHER INFORMATION: Clone US-09-960-352-2312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                    밁
                                                                                              δÃ
                                                                                                                                    밁
                                                                                                                                                                  Ş
                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                     멂
                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S-09-960-352-2312
Sequence 2312, Application
Patent No. US20020137139A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 339; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1087
                                                                                                                                                                                                                                                                                                                                                                                                                          1554 TGTCCACCTTGCTCAACTATGACTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCA 1613
1614 TAGAAATACGATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTG
                                                                                   1854 CCCGGAAGCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTC
                                                                                                                                                                                                                    1734 ACTTCAAGGTGGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGG
                                                                                                                                                                                                                                                                                       1674 GGAAGTACGGGAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACACCCACAGCGCCCC
                                                                                                                                                                     1794 TCTTTGTCCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                         63
                                                                                                                                                                                                                                                                                                                                                                                                          3 TGTCCACGATGCTCAACTATGACTATGTGTGGGATATGGTCTTCTACCCCAATGGGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTTGACGTTCGATTCCAGTGAGAACGGCTGGCTTATGAGATCAGCCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTTGACGTTCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCA 1257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGTGGCCTCCTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCCAAGGAT
                                                                CCCGGAAGCAGCTGGAGACCGAGGAGCAGCCTTCCCCCTGGGAGGGGCTTCCCCTC
                                                                                                                                      GAAGATACGGAAACCAGGTTGGGGAACACACACTGGGCCCCGTCCACACCCCACAGTGCCC
                                                                                                                                                                                                                                                                                                                                        TAGAAGTCAAATTGCATGCCACGGGCTACATCAGCTCAGCGTTCCTCTTTGGTGCTGCCC
                                                                                                                                                                                                     ACTACAAGGTGGATCTGGACGTGGGAGGACTGGAAAAACTGGGTCTGGGCTGAGGATATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7.6%;
85.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                us/09960352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ID: 10-LIB34-071-Q1-E1-C5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 305.4; DB 10; Pred. No. 8.4e-81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ASSOCIATED WITH LACTATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1146
                                                                                                     1913
                                                                                                                                                                       1853
                                                                                                                                                                                                                                        1793
                                                                                                                                                                                                                                                                                                        1733
                                                                                                                                                                                                                                                                                                                                                                          1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                            62
                                                                                                                                        302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

RESULT 11 US-09-960-352-3311 ; Sequence 3311, Application ; Patent No. US20020137139A1

```
APPLICANT: Wasten, Wesley C.

APPLICANT: Tao, Nengbing

APPLICANT: Tao, Nengbing

APPLICANT: Mathialagan, Nagappan

TITLE OF INVENTION: NUCLEIC ACID AND OTHER MOLECULES ASSOCIATED WITH LACTATION AND

TITLE OF INVENTION: MUSCLE AND FAT DEPOSITION

FILE REFERENCE: 16511.006/37-21(10298)C

CURRENT APPLICATION NUMBER: US/09/960,352

CURRENT FILING DATE: 2001-09-24

NUMBER OF SEQ ID NO 5603

LENGTH: 388

TYPE: DNA

ORGANISM: Bos taurus

OTHER IMFORMATION: Clone ID: 24-LIB34-004-Q1-E1-F11

US-09-960-352-5603
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                     US-09-960-352-5603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: DNA
OTHER INFORMATION: Clone ID: 15-LIB188-015-Q1-E1-D3
US-09-960-352-3311
                                                                                                                                                                                                                                                                                                                Sequence 5603, Application US/09960352 Patent No. US20020137139A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 6.8%;
Best Local Similarity 84.9%;
Matches 309; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 15112
SEQ ID NO 3311
LENGTH: 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Warren, Wesley C.
APPLICANT: Tao, Nengbing
APPLICANT: Byatt, John C.
APPLICANT: Byatt, John C.
APPLICANT: Mathialagan, Nagappan
TITLE OF INVENTION: NUCLEIC ACID AND OTHER MOLECULES ASSOCIATED WITH LACTATION AND
TITLE OF INVENTION: MUSCLE AND FAT DEPOSITION
FILE REFERENCE: 16511.005/37-21(10298)C
CURRENT APPLICATION NUMBER: US/09/960,352
CURRENT FILING DATE: 2001-09-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2049 ACCAGCTGGCTGTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGCAGCGTTTTCAATC 2108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 CTGA 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ACCAGCTGGACGTGACCCACAGGAAGGAGACAGGCCAGCAGCTCCAGCGTCGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGA 2412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTTCCGAGGGGACCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACATTCCTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGAATGACGCCTGGACTCCCACTGTGGACTTTGCTGATCTATCAACAATGAGACCATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGAGACCATTG 2168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCTTTGATGAGGACCCCTCCATCAATTCTGCTGACTCAATCTACTTCCAAAAACACCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 276; DB 10; Pred. No. 5.1e-72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 364;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
Ş
                                                                                          Ş
                                                                                                                                                                                                                                                                               FEATURE:
NAME/KEY: unsure
NAME/KEY: unsure
OTHER INFORMATION: unsure at
OTHER INFORMATION: Clone ID:
US-09-960-352-2524
                                                         밁
                                                                                                                                밁
                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 13
US-09-960-352-2524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 15112
SEQ ID NO 2524
LENGTH: 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2524, Application US/09960352 Patent No. US20020137139A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 317; Conserv
                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Byatt, John C.

APPLICANT: Mathialagan, Nagappan

APPLICANT: Mathialagan, Nagappan

TITLE OF INVENTION: MUCLEIC ACID AND OTHER MOLECULES ASSOCIATED WITH LACTATION AND

TITLE OF INVENTION: MUSCLE AND FAT DEPOSITION

FILE REFERENCE: 16511.006/37-21(10298)C

CURRENT APPLICATION NUMBER: US/09/960,352

CURRENT FILING DATE: 2001-09-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Warren, Wesley C. APPLICANT: Tao, Nengbing
                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1379
                                                                                        1474 CCCCCTGCGGCGACACCACTCAGATCTCTACTCGCACTACTTTGGGGGGTCTTGCGGAAAC 1533
                                                                                                                                                  1414 GTCCCAGGCCCCAAGACAATACGTGATGCCTTTTGTGTGTTTTGAACAGAACCAGGGCCT 1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1259 GAGGCCTTGGCCATCTATGGTGGAAATTCCCCCAGCAGCAATGACGACCCGCTATGTGGAT 1318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   242
                                                                                                                                  16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62
                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 GAGGCCTTGGCCATCTATGGTGGAAATTCTCCTTTTGCCTTGAGAGGCCGGTATGCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITCATICCCACTATITIGGGGGTGTTGTGGAGACAGTGCTGGTCTTCAGGTCTGTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGCCTTTTGTGTGTGTTTGAACAGAACCAGGGCCTCCCCCCTGCGGCGACACCACTCAGAT 1498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGGCCACCTACGTGGACTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGT 1438
                     GGTGCTGGTCGTCAGATCTATGTCCACCTTGCTCAACTATGACTATGTGTGGGGATACGGT
                                                       GTCCCTGAGGCGACAACACTCAAAGTTTCCTTCGCACTATTTTGGGGGGCGTTGCACAAAC
                                                                                                                                GTCCCAAACGACCAAGACACTACATGGTGCCTTTTGTGTGTTTGAGCAGAACAAGGGCCT 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATACGATTCTATGCCACGGGCTACATC 1645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACGATGCTTAATTATGACTATGTGTGGGATATGGTCTTCCAACCCACTGGGGCCATAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCTACTCGCACTACTTTGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCC 1558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACGCCTTTTGTGTGTTTTGAGGAGAACAATGGCCTGCCCCTAAGGCGACACCACTCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGCTACCTACGTGGACTGGCACTTCCTTCTGGAGTCCCAAGCCCCCAAGACACTACAA 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCTTGCTCAACTATGACTATGTGGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAA 1618
                                                                                                                                                                                                          303;
                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                       6.1%;
76.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.8%;
81.9%;
   =
=
=
=
                                                                                                                                                                                                                                                                                                all n locations
11-LIB34-050-Q1-E1-C3
                                                                                                                                                                                                        0,
                                                                                                                                                                                                                       Score 247.2;
Pred. No. 2.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 275; DB IV;
Pred. No. 1.1e-71;
"'Amatches 70;
                                                                                                                                                                                                        Mismatches
2; DB 10;
2.4e-63;
                                                                                                                                                                                                94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

```
APPLICANT: Hyseq, Inc.
APPLICANT: Hyseq, Inc.
TITLE OF INVENTION: NOVEL NUCLEIC ACID SEQUENCES OB:
TITLE OF INVENTION: FROM VARIOUS CDNA LIBRARIES
FILE REFERENCE: 20411-756
CURRENT APPLICATION NUMBER: US/09/918,995
CURRENT FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US/09/235,076
PRIOR APPLICATION NUMBER: US/09/235,076
PRIOR FILING DATE: 1999-01-20
NUMBER OF SEQ ID NOS: 38054
SOFTWARE: FASLSEQ for Windows Version 3.0
SEQ ID NO 35960
LENGTH: 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-918-995-35960
; Sequence 35960, Application US/09918995
; Publication No. US20030073623A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                       Ş
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; ORGANISM: Homo sapiens 
US-09-918-995-35960
                                                                                                   Š
                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                            õ
                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 5.2%;
Best Local Similarity 72.7%;
Matches 271; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1654
                                                                                                                                                                                                                                                                                                                         2194
                                                                                                                                                                             2314
                                                                                                                                                                                                                                                   2254
                                                                                                                                                                                                                                                                                                                                                                                              2134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2074 GGAGGAGGAGCCCAGTAGCAGCAGCGTTTCAATCAGAATGACCCTTGGGCCCCCACTGT 2133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   376
                                                                                                                                                                                                               193
                                                                                                                                                                                                                                                                                     133 CACAGCCAGCTTCCTGCACATTCCCCATGCCGAGGACATCCCAAACACAGTGACTCTGGG
373
                                                                                                                                                                                                                                                                                                                                                             73
                                                                                                                                                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTCTGGGCCGAGGATATGGTCTTTGTCCCCCATGGCT 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTCCAGAATGACAGTGCTCACTACAACGTGGATCCGGACGTGTGAGGACTGGCAAACTG 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTCCTCTTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCAGAGCACACCCTGGGCAC 1713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTCCACCCCAGTGGGGCCATAGAAATACGATTCTATGCCACGGGCTACATCAGCTCGGC 1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTGATGTTCTTCAAGTCTGTCGACGATGCTCAAATATGACTATATGTGGGATATGGT 195
                                                                                                                                                                                                                                                                                                                                                         GGTCCACACCCCACAGCGCCCACTTCAAGGTGGATCTGGATGTAGCAGGACTGGAGAACTG 1773
                                                                                                                                                            CTCTGCCGACTCCATCTACCTTCCGAGGGGACCCAGGATGCTGGGGGCCTGCGAGGTCAACCC 2373
                                                                                                                                                                                                                                GAACGGCGTGGGCTTCTTCCCTCCGACCCTATAACTTCTTTGACGAAGACCCCCTCCTTCTA 2313
                                                                                                                                                                                                                                                                                                          GACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTCCTAACACAGTGACTGTGGG 2253
                                                                                                                                                                                                                                                                                                                                                                                                                                GGTCTGTGCTGATGATATCGCATTTGTCNCCACAGCT
                                                                                                     CCTAGCTTGCCTGCCCAGGCTGCCTGTCCCCGACCTCCCTGCCTTCTCCCACGG 2433
                                                                                                                                                                                                               GAACAGAGTTGGCTTCTTGCTCCGACCCTATAACTTCTTTGATGAGGACCCCTCCATCTT
                              GGGCTTCTCTCAC 2446
                                                                   TGTGGCCTGCCCGACCTGGCAGCCTGTGTCCCGGACTTACCCCCTTTCTCTTACCA 372
                                                                                                                                       CTCCCCTGGCAGTGTCTACTTTGAGAAGGGCCAGGATGCTGGGGCTCTGCAGCATCAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 209.8; DB 9;
Pred. No. 3.9e-52;
0; Mismatches 102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OBTAINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              405;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                 252
                                                                                                                                                                                                                                                                                       192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

Search completed: May 20, 2003, 11:30:46 Job time: 834 secs

```
NUMBER OF SEQ ID NOS: 15112

SEQ ID NO 3010

LENGTH: 254

TYPE: DNA
ORGANISM: Bos taurus
OTHER INFORMATION: Clone ID: 13-LIB34-066-Q1-E1-D1
US-09-960-352-3010
                                                                                                   Ş
                                                                                                                                         B
                                                                                                                                                                     Ş
                                                                                                                                                                                                        B
                                                                                                                                                                                                                                        γ
                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 15
US-09-960-352-3010
                                Ş
                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 3010, Application US/09960352 Patent No. US20020137139A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 210; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Warren, Wesley C.
APPLICANT: Tao, Nengbing
APPLICANT: Tao, Nengbing
APPLICANT: Byatt, John C.
APPLICANT: Byatt, John C.
APPLICANT: Mathialagan, Nagappan
TITLE OF INVENTION: NUCLEIC ACID AND OTHER MOLECULES ASSOCIATED WITH LACTATION FITTLE OF INVENTION: MUSCLE AND FAT DEPOSITION
FILE REFERENCE: 16511.006/37-21(10298)C
CURRENT APPLICATION NUMBER: US/09/960,352
CURRENT FILING DATE: 2001-09-24
                                                                                                                                                                                                                                                                         1224 AAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGAGGCCCTTGGCCATCTATGGTGGAA 1283
                                  1404
                                                                                                                                     1344
                                                                    181
                                                                                                                                                                                                         61
                                                                                      CCACGCCCTGACCCGTGGGGTGGACTGCCCCTACTTGGCCACCTACGTGGACTGGCACT 1403
                TCCTTTTGGAGTCC 1417
                                                                                                                                                                                                         AGGGAGAACGGCTGGCTTATGAGATCAGCCTGCAAGAGGCTGGTGCTGTCTACGGTGGGA 120
                                                                  CCACACCCCTGATTCGTGGCGTAGACTGCCCTTACCTGGCCACCTACATGGACTGGCACT
TCGTTGTGGAGTCC
                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                               4.5%;
                                                                                                                                                                                                                                                                                                                                             Score 183.6; DB Pred. No. 2e-44; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                 DB 10;
                                                                                                                                                                                                                                                                                                                                                   44.
                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                 Gaps
```

```
Title:
Perfect score:
                                                                                                             Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                   ი
                                                                                                 ΝO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
9
                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
     4008.2
932.2
817.4
801.2
780
751.8
                                                                                               Score
                                                                                             Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    May 20, 2003, 03:28:53 ; Search time 4937 Seconds (without alignments)
13252.940 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-081-408-1
4040
                               99.2
23.1
20.2
19.8
                                                                                                                                                                                                                                                                                                                                                                                                      13:10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16154066 segs, 8097743376 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             em_estp1:*
                                                                                                                                                                                                                em_gss_other:*
em_gss_pro:*
em_gss_rod:*
                                                                                                                                                                                                                                                     em_gss_fun:*
em_gss_mam:*
em_gss_mus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                        gb_est1:*
                                                                                                                                                                                                                                                                                           em_gss_hum:*
em_gss_inv:*
em_gss_pin:*
em_gss_vrt:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em_htc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  em_estro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         em_estmu:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em_esthum:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              em_estba:*
                                                                                                                                                                                                                                                                                                                                                                                                                           gb_est2:*
gb_htc:*
                                                                                                                                                                                                                                                                                                                                                              em_estom:*
                                                                                                                                                                                                                                                                                                                                                                                      gb_est5:*
                                                                                                                                                                                                                                                                                                                                                                                                                gb_est3:*
                                                                                                                                                                                                                                                                                                                                                 gb_gss:*
                                                                                                                                                                                                                                                                                                                                                                            em_estfun:*
                                                                                                                                                                                                                                                                                                                                                                                                     gb_est4:*
      4064
961
929
887
1039
957
    AL540526
BQ706857
BI818374
AL568455
BQ878960
                                                                                               H
                                                                     BC036368
                                                                                                                                      SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32308132
BC036368 Homo_gap1
AL540526 AL540526
BQ706857 AGENCOURT
BI818374 60302815
AL568455 AL568455
BQ878960 AGENCOURT
                                                                                           Description
                                                                                                                                                                                                                                                                                                                                  LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                            RESULT 1
BC036368
```

a 0.0 O

W24606 zb63g01.		W24606	14	407	8.3	335.6	45	
164		BE47	<u>:</u>	0		42.	44	
_ ×-E		BM82339	Ļ	ū		ഗ	3	
_		BE04862	<u></u>	5	•	54.	42	O
7063d		H43(Ļ	\mathbf{L}	•	62.	41	O
BI013968 PM3-		BI01	<u></u>	N		76.	40	O
AI458535 tk05h		AI458	9	œ	•	76.	39	u
AA036974 zk32d		AA036	9	9	٠	77.	38	
AI871588 we28a		A1871	9	\mathbf{r}	٠	82.	37	a
BE758045 2126		BE75	<u>,</u>	_		84.	36	
AI807879 wf43g		A1807879	9	7		93.	35	a
AW131121 xf58a05.x		AW13		N	٠		34	1,
H42560 yo63d1		H425	Ļ	4		99.	33	
AI268118 qo44g		AI268	9	ω	0	0	32	a
BF433374 7q69		BF 4 3	٠,	\mathbf{L}	0	07.	31	
AA807904 nu94d	_	.AA807	9	\vdash	0	3	30	G
вм483607 5371		BM48360	=	ū	0		29	
BI681765 4612		B168	1	7	0	20.	28	
BM831093 K-ES		BM83109	۲,	w	0	w	27	
AI042036 ox60b		AI042036	9	w	0	34.	26	ဂ
вв636655 вв63		BB63	<u>'</u>	4	۲		25	
AI082117 oz38c		AI082	9	8	۲	80.	24	ဂ
AI129246 qc38c		AI129	Q	8	-	В	23	•
ALO47423 DKFZp		AL047	9	9	'n	Θ	22	
AI279210 qm24c		AI279	و	0	'n	0	21	ဂ
AW853957 RC3-		AW85395	1	ū		0	20	
BM831002 K-ES		BM83	Ļ	2	ω	52	19	
BE673388 7d34		BE67338	Ľ	ω	Ü		18	O
BM666550 UI-E-CO1		BM66655	_	7	ω	35	17	
601		BG72187		0	ω	4	16	
603		BI81843	<u>_</u>	78	ω		15	
ISU257		U257	ř	7	4	Φ	14	
g		BM99256	Ļ	2	4	8	13	a
<u> </u>		BG71823	1	9	Ģ	8	12	
٥. ۵.		BQ72	ĭ	σ	5	622.4	11	
AGE		BQ71254	7	æ	ŗ	31.	10	
Jui-		BM97383	ĭ	4	Ġ	ω	ø	O
o,		BG03310	::	767	Ġ	5	œ	
603		BI48992	Н	764	7.	20.	7	

0.0 o 0 0

a

O

ALIGNMENTS

BC036368 4064 bp mRN Homo sapiens, amine oxidase, copper co protein 1), clone IMAGE:4826423, mRNA.

mRNA

mRNA linear · HTC 07-AUG-2002 containing 3 (vascular adhesion

ACCESSION VERSION KEYWORDS SOURCE ORGANISM REMARK COMMENT REFERENCE AUTHORS TITLE JOURNAL NIH-MGC Project URL: http://mgc.nci.nih.gov Contact: MGC help desk Email: cgapbs-remail.nih.gov Tissue Procurement: Miklos Palkovits, M.D., Ph.D. CDNA Library Preparation: Michael J. Brownstein (CDNA Library Preparation: Michael J. Brownstein (Toshiyuki and Piero Carninci (RIKEN) CDNA Library Arrayed by: The I.M.A.G.B. Consortiu DNA Sequencing by: Institute for Systems Biology BC036368 BC036368.1 Strausberg, R.

Direct Submission

Submitted (05-AUG-2002) National Institutes of Health, Mammalian Submitted (05-AUG-2002) Cancer Genomics Office, National Cancer Gene Collection (MGC), Cancer Genomics Office, National Cancer Institute, 31 Center Drive, Room 11A03, Bethesda, MD 20892-2590, Homo sapiens http://www.systemsbiology.org contact: amadan@systemsbiology.org Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. ıuman. GI:22137778 .M.A.G.E. Consortium (LLNL) J. Brownstein (NHGRI) &

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 4021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                            676
                                                                           606
                                                                                                     919
                                                                                                                                  546
                                                                                                                                                               556
                                                                                                                                                                                          486
                                                                                                                                                                                                                                                   426
                                                                                                                                                                                                                                                                                                             366
                                                                                                                                                                                                                                                                                                                                                                      306
                                                                                                                                                                                                                                                                                                                                                                                                   316
                                                                                                                                                                                                                                                                                                                                                                                                                                246
                                                                                                                                                                                                                                                                               436
                                                                                                                                                                                                                                                                                                                                                                                                                                                            256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6
             GTTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGAGCTGCCCCAGGCTTC
                                                                                                                               GCAACCCCAGCCCAACGTGAGTGAGCTGGTGGTGGGGCCACTGCCTCACCCCCTCCTACAT
                                                                                                                                                                                                                                                GGACAACTGTGTCTTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCA
                                                                                                                                                                                                                                                                                                                          GCGCTTTCTGACCCAGCGCTGGGGGCCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                    ACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGGAGCTGACGGCTGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGTGAACCCAGCCAGCTTCCCCCATTGCCCCTCTGTATCTCCCCAGTGCCCCAGCCTTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCAGCTGTCCCTCTTCGTGGAAAATGAACCAGAAGACAATCCTCGTGCTCCTCATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGGACGTGACTGTGGAGCGTCATGGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCT
                                                                                                                                                                                                                                                                                                             GCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                GGGTGAACCCAGCCAGCTTCCCCATTGCCCCTCTGTTTCTCCCAGTGCCCAGCCTTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAATACATTGCTCTCCTTTGGTTGA
                                                                         GCGGGACGTGACTGGAGCGTCATGGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCT
                                                                                                                                                                                         CTTGGACAGGGGGAGCCCCCCACCTGCCCGGGAGGCACTGGCCATCGTCTTCTTTGGCAG
                                                                                                                                                                                                                      CTTGGACAGGGGAGCCCCCCCCCCCCGGGAGGCACTGGCCATCGTCTTCTTTGGCAG
                                                                                                                                                                                                                                                                                                                                                                    ACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGCTGACGGCTGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              through
Series:
This clo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Anup M
Madan,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                we distribution: MGC clone distribution information can bugh the I.M.A.G.E. Consortium/LLNL at: http://image.llr.es: IRAK Plate: 33 Row: n Column: 3 clone was selected for full length sequencing because led the following selection criteria: matched mRNA gi: 6 clone has the following problem: frame shifted.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Madan, Jessica Fahey, Erin Helton, Mark Ketteman, Anuradha
n, Stephanie Rodrigues, Amy Sanchez and Michelle Whiting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
/db_ref="taxon:9606"
/clone="IMAGE:4826423"
/tissue_type="Testis"
/clone_lib="NIH_MGC_97"
/lab_host="DH10B"
/note="Vector: pBluescript"
a 1177 c 1097 g 930 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :4064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 4008.2;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                             495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
                                                                                                     675
                                                                                                                                  605
                                                                                                                                                            615
                                                                                                                                                                                         545
                                                                                                                                                                                                                      555
                                                                                                                                                                                                                                                   485
                                                                                                                                                                                                                                                                                                            425
                                                                                                                                                                                                                                                                                                                                                                    365
                                                                                                                                                                                                                                                                                                                                                                                                   375
                                                                                                                                                                                                                                                                                                                                                                                                                                305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   255
                                                                        665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1;
Ş
```

Š В QΥ 밁 Ş 밁 δõ

밁

밁 δ g δõ В δ 밁 Ş B Ş B δÃ 밁 Š ₽ γQ

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                 밁
                                                                 QΥ
                                                                                   밁
                                                                                                  δÃ
                                                                                                                    B
                                                                                                                                    Ş
                                                                                                                                                       밁
                                                                                                                                                                     οy
                                                                                                                                                                                        밁
                                                                                                                                                                                                       Š
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                          ő
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                        1446
                                                                                                                                                                                                                         1386
                                                                                                   1636
                                                                                                                                                                        1516
                                                                                                                                                                                                          1456
                                                                                                                                                                                                                                                                                              1266
                                                                                                                                                                                                                                                                                                                                               1216
                                                                                                                                                                                                                                                                                                                                                                 1146
                                                                                                                                                                                                                                                                                                                                                                                  1156
                                                                                                                                                                                                                                                                                                                                                                                                   1086
                                                                                                                                                                                                                                                                                                                                                                                                                    1096
                                                                                                                                                                                                                                                                                                                                                                                                                                     1026
                                                                                    1625
                                                                                                                                                                                                                                                                             1336
                                                                                                                                                                                                                                                                                                              1276
                                                                                                                                                                                                                                                                                                                                1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1036
1816
                                                                                                                                     1576
                                                                                                                                                       1506
                                                  1685
                                                                  1696
                                                                                                                     1566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATCTCGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCTGCTAGTGAACCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAACCTGGTGACAATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTC
                                                                                                                    CTATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAATACGATTCTATGCCAC
                                                                                                                                                                                        CTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACGTGATGCCTTTTGTGTGTTT
                                                                                                                                                                                                                                                            TCGCTTCCAAGGAGAAGACTAGTTTATGAGATAAGCCTCCAAGAGGCCTTGGCCATCTA 1275
                                                                                                                                                                                                                                                                                                                                                                        CTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGT
                                                                                                                                                                                                                                                                                                                                                                                                            CCCTCTACAGTTCTATCCCCAAGGCCCCCCGCTTCAGTGTCCAGGGAAGTCGAGTGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCAAGGCCGCTACTACGA
                                                TGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCACCTTGCTCAACTATGA
                                                                                                                                                                TGGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCACCTTGCTCAACTATGA
                                                                                                                                                                                                                           CTGGCACTTCCTTTTGGAGTCCCAGGCCCCCAAGACAATACATGATGCCTTTTGTGTGTT
                                                                                                                                                                                                                                                                                             TCGCTTCCAAGGAGAAAGACTAGTTTATGAGATAAGCCTCCAAGAGGCCTTGGCCATCTA
                                                                                                                                                                                                                                                                                                                                                                 CTCACTGTGGACTTTCTCCTTTGGCCTCGGAGCATTCAGTGGCCCAAGGATCTTTGACGT
                                                                                                                                                                                                                                                                                                                                                                                                   CCCTCTACAGTTCTATCCCCAAGGCCCCCCCCTTCAGTGTCCAGGGAAGTCGAGTGGCCTC
CTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGA
                         AGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1025
                                                                                                                                      1635
                                                                                                                                                                        1575
                                                                                                                                                                                                                                           1455
                                                                                                                                                                                                                                                                                                               1335
                                                                                                                                                                                                                                                                                                                                                                                                                    1155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            855
1875
                  1804
                                  1815
                                                                                     1684
                                                                                                     1695
                                                                                                                      1624
                                                                                                                                                                                         1505
                                                                                                                                                                                                          1515
                                                                                                                                                                                                                           1445
                                                                                                                                                                                                                                                                                              1325
                                                                                                                                                                                                                                                                                                                                                                 1205
                                                                                                                                                                                                                                                                                                                                                                                  1215
                                                                                                                                                                                                                                                                                                                                                                                                   1145
                                                                                                                                                                                                                                                                                                                                                                                                                                     1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           915
```

밁

Qγ

Ω 밁 Ω

δÃ 밁 ₽ Q 밁 δÃ В Ω

2836 CAGTCCTGCAAGTCCATAGCTGAGCTGGAGAAGGATGCTTCTGCTCACATTCCCTCCTCATC 2895 [2793 INSULGANSSCIECCIANAISSTICCCITISTIGCTGTCTGGCTTTCCCGAATCTTTT 2764 2776 AGGCCACCTCCAAGGACTCTAAAAGGGGGCTATTCCCTGGAGACCCCAGAGTAGGGTTGC 2835	45 TGATGCCAGCTGTACTGAGTTCTCATCCACAGAGGCCAGGCATGGCCCAGCCTGGAGCCG 16 TGGCCGAGGGCTTCCCTAGATGGTTCCCTTTTTTTTTTT	— H O	96 CCTCTGAGCCAGGAGCCTCCTGACCCTGTGATGCCTGACACAGGGGACACTGAACCTTGT 2	36 CCTGGTTCCCTCTTTCCTGTGCCAGGACTCTCTTTCTTCCACTACCCTCCCT		2416 CCCTGCCTTCTCCCACGGGGGCTTCTCTCACAACTAGGCGGTCCTGGGATGGGGCATGTG 2475	CCTGCGAGGTCAACCCCCTAGCTTGCCTGCCCCAGGCTGCTGCCTGTGCCCCCGACCT	CGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGGGGACCAGGATGCTGG 2	2236 TAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTATAACTTCTTTGA 2295	2176 GGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTCC 2235	CCCTTGGGCCCCACTGTGGATTTCAGTGACTTCATCAACAATGAGACCATTGCTGGAAA	056 GGCTGTGACCCAGCGGAAGGAGGAGGAGGAGCCCAGTAGCAGCAGCGTTTTCAATCAGAATGA 211 	1996 AGAGCCGCTGCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTGGGAGAGGTACCAGCT 2055	1936 CCACAGCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGG 1995	1876 GGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAA 1935	
0 D D 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Qy Db	Qy Db	Оy	D Oy	Оy	Qу	Оу	Оy	Db Qy	Db Qy	p 04	Db Qy	Db Qy	ğ Q	Db Qy	dd A	망
3916 GTTCAGGACAGGAAGGGTCTTAACACTTACACCCTTTTCTACATTTTGAATTT 3975 [856 ATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTTTTGGGAGGGGAACCAGTAG 391 	796 GTATAGCGCACTTCCCATTTGTGTTTCAGAAAGGAGTAGAATATAAACACATAATTGCTT		3676 GGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTATGCAGCTAAAAAAATAATTGT 3735 	3616 ATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAGAAACTTTTTTCTCTAAAGGACT 3675 	3556 CIGGTCCAGGCTIGGGCICCATICCCATCACTGCTGTCCCTCCTGAGGTCTGGATTGGGG 3615	3496 GGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGCCTGGCTGG	ნ ნ	3376 GCTGGAGTGGAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAAGCCCCTACAACTCCA 3435 	3316 ATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATTCTGCAACAGCCTGTTTGGGAG 3375	3256 GATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTCAAGTGATTTGGGGGTGCAATG 3315	3196 TITCAGGACAGCTGCTTCTGTGCATTTGTGTCTGCCTGCCTCATGCTCTCTATAGAGGAG 3255	3136 TGTGTCTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGTCCTGGGGCTGGGTGTG 3195	3076 GGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCCTGTGTGTCGTTCCCT 3135	3016 CCCCTGGTACTCCCCAGCCCTCAGTTTCAGTCAAGTTCCGTCTCCTCCAGCCCTAT 3075	5 TGCCTT	885 CAGGTCCTTTCCTTCTCGTCTTCTCTCTCTCACCTACTTCCTCCTCCTCCTCCTGTTCC

δÃ g δ 밁 Š

Ş В Ş 밁 õ В Q В Š 밁 Ş 밁 Ş 밁 Qy 밁

밁

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 2
AL540526
                                                                     밁
                                                                                               Ω
                                                                                                                                        В
                                                                                                                                                                          Š
                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                            Qy
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                            Š
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 942; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4036
                                                                                                                                                                                                                                                                                                                                                          1624 ATTCTATGCCACGGGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGG 1683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4025 AAAAA
                                                                                                       1864
                                                                                                                                                                                                                                                     1744
                                                                                                                                                                                                                                                                                                         1684 GAACCAAGTGTCAGAGCACACCCTGGGCACGGTCCACACACCCCACAGCGCCCACTTCAAGGT
                                   1924
 301
                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                       61
                                                                                    GCTGGAGATGGAGGAGCAGGCCGCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTA 1923
                                                                                                                                                           CATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCT 1863
                                                                                                                                                                                                                                  GGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTTGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAAAA
                                 CCTGGCCAGCAACCACAGCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCT 1983
                                                                                                                                          CATGGCTGTGCCCTGGAGCCCTGARCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCT
                                                                                                                                                                                                                 GGATCTGGATGTAGCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCC
                                                                                                                                                                                                                                                                                       GAACCAAGTGTCAGAACACACCCTGTGCACGGTCCACACCCACAGCGCCCCACTTCAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AL540526 961 bp m
AL540526 LTI_FL002_PL1 Homo sapiens
, mRNA sequence.
AL540526
AL540526 1 GI:12870759
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
Email: segref@genoscope.cns.fr, Web : www
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Li,W.B., Gruber,C., Jessee,J. and Polayes,D.
Full-length cDNA libraries and normalization
Unpublished (2001)
Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 961)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             184
                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note-*Organ: placenta; Vector: pCMVSPORT 6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and cloned into the Not I and Eco RV sites of the pCMVSPORT 6 vector. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive Rockville, Maryland 20850, USA Fax: (1) 301 610 8371 Email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /Clone="CSODE001YN01"
/Clone_11b="LTI_FL002_PL1"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                  23.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        //fulllength.invitrogen.com<sup>®</sup>
96 c 277 g 199 t
                                                                                                                                                                                                                                                                                                                                                                                                                                 5.
                                                                                                                                                                                                                                                                                                                                                                                                                               Score 932.2; DB 9;
Pred. No. 1.1e-169;
5; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Web : www.genoscope.cns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nRNA linear EST 16-FEB-2001 CDNA clone CS0DE001YN01 5 prime
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                 1;
                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                 1803
                                                                                                                                          240
                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        prime
                                                                                                                                                                                                                                                                                                                                                                                                                                 ۲
```

```
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 3
BQ706857
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGGCCGGCA-SCTGGTTCCCTCTTTCCTGTGCCAGGACTCTCTTTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGGGGCATGTGGCCAAGGGCTCCAGGGCCAGGGTGTGAGGGATGGGGAGCAGCTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCCCCCGACCTCCCTGCCTTCTCCCACGGGGGCTTCTCTCACAACTAGGCGGTCCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TAACTTCTTTGACGAAGACCCCTCCTTCTACTCTGCCGACTCCATCTACTTCCGAGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGAGGACATTCCTAACACAGTGACTGTGGGGGAACGGCGTGGGCCTTCTTCCTCCGACCCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGAGGACATTCCTAACACAGTGACTGTGGGGAACGGCGTGGGCTTCTTCCTCCGACCCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATTGCTGGAAAGGATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pissue Procurement of the Instance of the Inst
                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 929)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGENCOURT_8351612 NIH_MGC_113
5', mRNA sequence.
BQ706857
BQ706857.1 GI:21845756
                                                                                                                                                                                                                                                                                             Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. Mark Watson
                                                                                                                                                                                                                                                                                                                                              Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BQ706857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               human
/organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo
                                                                                                                                                                                                                                                                                                                                                                                                 Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA linear EST 16-JUL-2002 sapiens cDNA clone IMAGE:6282396
                                                                                                                                                                                                                                                                                                                                                                                                 Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                   ьe
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1577
                                                                                                                                                                                                                                                                                                                                                                                                                                                        2057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1457 GAACAGAACCAGGGCCTCCCCCTGCGGCGACACCACTCAGATCTCTACTCGCACTACTTT 1516
                                                                                                                                                                                                                                                                                                                         2117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1997
                                                                                                                                                                                                                                                                                                                                                                                         614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAGCTGGGAGAGGGTACCAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGCACCCTGGGCACGGTCCACACCCACAGCGCCCACTTCAAGGTGGATCTGGATGTA 1756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCA 1696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAATACGATTCTATGCCACG
GATTTGGTGGCCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGGACATTCCT
                                                                                                                                                                                                                                                                                           CCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGAGACCATTGCTGGAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTGTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGCAGCGTTTTCAATCAGAATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATAGAAATACGATTCTATGCCACG
                                                                                                                                                                                                                                                          CCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAACAATGAGACCATTGCTGGAAAG
                                                                                                                                                                                                                                                                                                                                                                                     GCTGTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGCGTTTTCAATCAGAATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAG
                                                                                                                              GATTTGGTGGGCTGGGTGACAGCTGGTTTTCTGCATATCCCACATGCAGAGGGAATTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="IMAGE:6282396"
/clone_lib="NIH_MGC_113"
/lab_host="DH10B (phage-resistant)"
/lab_host="DH10B (phage-resistant)"
/lote="Organ: spleen; Vector: pOTBP; Site_1: XhoI; Site_2:
/note="Organ: spleen; Vector: pOTBP; Site_1: XhoI; Site_1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 817.4; DB 14;
Pred. No. 1.5e-147;
0; Mismatches 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1636
                                                                                                                                                                                          2236
                                                                                                                                                                                                                                                                                                                                                                                                                                                     2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              193
                                                                                                                                                                                                                                                                                                                                                                                         673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
```

δÃ 밁 Ş 밁 οy 밁 δÃ В Ş 밁 Š

밁 8 밁

δ

Ş 밁 δÃ 밁 5 밁 δÃ 밁

Ş 밁

δ 밁

밁

```
RESULT 4
BI818374
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              용
                                                                          В
                                                                                                           δÃ
                                                                                                                                                  밁
                                                                                                                                                                                   Š
                                                                                                                                                                                                                           밁
                                   Š
                                                                                                                                                                                                                                                                                                 Query Match 19.8
Best Local Similarity 98.8
Matches 881; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                         121
                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACGAAAGACCCCTCCTTCTACTCTGCCGAACTCCATCTAACTTCCAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GACGAAGACCCCTCCTTCTACTCTGCCG-ACTCCATCTACTTCCGAGGGG-
GCAGCAGCTCAAGTTAGCATTTCAAGTGATTTGGGGGTGCAATGATAATGAAGAATGGCC 3331
                                                                                                                                                                      TCTGTGCATTTGTGTCTGCCTGCCTCATGCTCTCTATAGAGGAGGATGGTCATCGTGACA 3271
                                                                                                                                                  TCTGTGCATTTGTGTCTGCCTGCCTCATGCTCTCTATAGAGGAGGATGGTCATCGTGACA
                                                                            GCAGCAGCTCAAGTTAGCATTTCAAGTGATTTGGGGGGTGCAATGATAATGAAGAATGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BI818374.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nlh.gov
Tissue Procurement: Life Technologies, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; 1 (bases 1 to 887)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA sequence.
BI818374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BI818374
603032815F1 NIH_MGC_115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate:: LLAM11433 row: m column: 04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        quality sequence stop: 882.
Location/Qualifiers
1. .887
                                                                                                                                                                                                                                                                                                                                                                                       /note-"Organ: pooled brain, lung, testis; Vector:
pCMV-SPORT6; Site_1: NotI; Site_2: EcoRV (destroyed); RNA
source anonymous pool of 6 male brains, age range 23-27;
male lung, age 27; and 1 male testis, age 69. Library is
oligo-dT primed and directionally cloned (EcoRV site is
destroyed upon cloning). Average insert size 1.8 kb,
insert size range 1-3 kb. Library is normalized and
enriched for full-length clones and was constructed by C.
Gruber (Invitrogen). Research Genetics tracking code
021. Note: this is a NIH_MGC Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo saplens"
/db_xref="taxon:9606"
/clone="IMAGE:5174187"
/clone_lib="NIH_MGC_115"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                       19.8%;
                                                                                                                                                                                                                                                                                                       0,:
                                                                                                                                                                                                                                                                                                     Score 801.2; DB Pred. No. 2e-144; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              887
Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp mRNA
sapiens cDI
                                                                                                                                                                                                                                                                                                                                        DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RNA linear EST 04-OCT-2001 CDNA clone IMAGE:5174187 5',
                                                                                                                                                                                                                                                                                                       ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gene
                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              904
                                                                                                                                                                                                                                                                                                                                                                                                                                                      constructed by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                                                                                                                                                                                                       8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  inge 23-27; 1
Library is
                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
```

ი

```
COMMENT
                                                                                                              REFERENCE
AUTHORS
TITLE
                                                                                                                                                                       ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                       RESULT 5
AL568455/c
                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                         ₽
                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                              FEATURES
                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                         3931
                                                                                                                                                                                                                                                                                                                                                                          3811
                                                                                                                                                                                                                                                                                                                                                                                                          3751
                                                                                                                                                                                                                                                                                                                                                                                                                                           3691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3632
                                                                                                                                                                                                                                                                                                                                          3871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3452
                                                     source
                                                                                                                                                                                                                                                                                                                                                          659
                                                                                                                                                                                                                                                                                                                                                                                                                                                           479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            419
                                                                                                                                                                                                                                                         838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                      CATTIGIGITICAGAAAGGAGTAGAATATAAACACATAATTGCITAIGTATGCCTATTCA
                                                                                                                                                                                                                                                               GGGAA-GGGTCTTAACACTTACACCCC-TTTTGTACATTTTGAACTTTTGAACCCATGTGACCT
                                                                                                                                                                                                                                                                                                                                                                                        AATATGTAATAATCTTCAGGTGAAAAAGGCAAGCCACAGAAATGTGTATAGCGCACTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCCATTCCCATCACTGCTGTCCCTCCTGAGGTCTGGATTGGGGATGGGGACAAAGAAT
                                                                                                                                                                                                                                                       AGCAAGAGATGAGAAACAACAGAAAC-TTTTTTTCTCTAAAGGACTGGTTAAATCAATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGAAGGGGTCTTAACACTTACACCCTTTTTGTACATTTTGAATTTTGAACCATGTGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCAAGAGATGAGAAACAACAGAAACTTTTTTTCTCTAAAGGACTGGTTAAATCAATTCT
                                                                                                                                                                                             AL568455
AL568455 LTI_FLO
, mRNA sequence.
                                                                                                                                                                      AL568455
AL568455.1
EST.
                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 1039)

Li.W.B., Gruber,C., Jessee,J. and Polayes,D.
Full-length cDNA libraries and normalization
Unpublished (2001)

Contact: Genoscope
Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
Email: seqref@genoscope.cns.fr, Web : www.genoscope.cns.fr.
                                                                                                                                                       Homo
                                                                                                                                                       sapiens
                                                                   91006 EVRY cedex - France segref@genoscope.cns.fr,
                                                                                                                                                                                                       LTI_FL002_PL1 Homo sapiens
                 /clone="CSODE001YN01"
/clone_lib="LTI_FL002_PL1"
                                  /organism="Homo sapiens"
/db_xref="taxon:9606"
          /lab_host="DH10B"
                                                            Location/Qualifiers
                                                                                                                                                                               GI:12922811
  placenta;
                                                                                                                                                                                                                1039
                                                                                                                                                                                                               ď
                                                                   Web :
 Vector:
                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                       cDNA clone
 PCMVSPORT
                                                                   . genoscope .
                                                                                                                                                                                                               linear
                                                                                                                                                                                                       CSODEOO1YNO1 3
                                                                                                                                                                                                                                                       887
9
                                                                                                                                                                                                               EST 16-FEB-2001
 lst
  strand
                                                                                                                                                                                                                                                                                                                                       3930
                                                                                                                                                                                                                                                                                                                                                                       3870
                                                                                                                                                                                                                                                                                                                                                                                                        3810
                                                                                                                                                                                                                                                                                                                                                                                                                                         3750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3511
                                                                                                                                                                                                                                                                                                                                                                                                                         598
                                                                                                                                                                                                                                                                                                                                                                                                                                                         538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           299
                                                                                                                                                                                                      prime
                                                                                                                                                                   Š
Š
                밁
                             δÃ
                                                 밁
                                                                ρ
                                                                                  밁
                                                                                                Ş
                                                                                                                    밁
                                                                                                                                  Ş
                                                                                                                                                    밁
                                                                                                                                                                                    망
                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
```

```
BASE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Sin
Matches 887;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNT
                                                                                              3715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1032
                                3775
                                                                                                                                                                                                                                                                                     3535
                                                                                                                                                                                                                                                                                                                                                 3475
                                                                                                                                                                                                                                                                                                                                                                                                               3415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3055
                                                                                                                                                            3655
                                                                                                                                                                                                                        3595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2995 GGGGATATCCCTATGTCCCAGCCCCTGGTACTCCCCCAGCCCTCAGTTTTCAGTCAAGTT 3054
                                                               312
                                                                                                                             372
                                                                                                                                                                                           432
                                                                                                                                                                                                                                                       492
                                                                                                                                                                                                                                                                                                                    552
                                                                                                                                                                                                                                                                                                                                                                                612
                                                                                                                                                                                                                                                                                                                                                                                                                                            672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           972
 252
                                                                                                                          CCGTCTCCTCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RGGGATATCCCTATGTCCCAGCCCCTGTACTCCCCCCAGCCCTCAGTTTTCAGTCAAGTT
AAAAGGCAAGCTCATCAGAAATGTGTTATKAGCGTCACTTTCCTCATTTGTGTTTCAGAA
                              AMAGGCAAGCCACA-----GAMATGTGTATAGCGCACTTCCCATTTGTGTTTCAGAA
                                                            ATGCAGCTAAAAAATAATTGTATGTCTTTATATACTAATATGTAATAATCTTCAGGTGAA
                                                                                                                                                                                                                                                    STGGGKGGGGGGGSSTGGCCTGGTCCAKGTTTGGGCTTTATTYCCWTTACTGCTGTTC
                                                                                                                                                                                                                                                                    CTGGGTGGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCC
                                                                                                                                                                                                                                                                                                                                  ATGCGAATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                CTGCAACAGCCTGTTTGGGAGGCTGGAGTGGAAACAAAGGGTGGGCATMAAAGATGAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGCAACAGCCTGTTTGGGAGGCTGGAGTGGAAACAAGGGTGGGCATCAAAGATGAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGTGATTTGGGGGGTGCAATGATAATGAAGAATGGCCATTTTGTACCAGGGCTCTGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCATGCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCATGCTCTATAGAGGAGGATGGTCATCGTGACAGCAGCAGCTCAAGTTAGCATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATCCCTGTGTGTCCCTTGTGTGTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AATCCCTGTGTGTCGTTCCCTTGTGTCTGTTGCTTATTGGGAGTAGGAGTTGCTCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGTCTCATCTCCAGCCCTATGGAAGTCTCAAGGTCACGGGACCCCTAATCAGAGTGGCC
                                                                                                                                                                                                                                                                                                                ATGCGAATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCSTGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and Cloned into the Not I and Eco RV sites of the pCMVSPORT 6 vector. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive Rockville, Maryland 20850, USA Fax: (1) 301 610 8371 Email: fliang@lifetech.com URL:

http://fulllength.invitrogen.com"
a 259 c 188 g 239 t 33 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 780; DB 9; I
Pred. No. 2.5e-140;
3; Mismatches 89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                         3714
                                                                                                                                                                                         373
                                                                                                                                                                                                                     3654
                                                                                                                                                                                                                                                    433
                                                                                                                                                                                                                                                                                   3594
                                                                                                                                                                                                                                                                                                                  493
                                                                                                                                                                                                                                                                                                                                                 3534
                                                                                                                                                                                                                                                                                                                                                                              553
                                                                                                                                                                                                                                                                                                                                                                                                            3474
                                                                                                                                                                                                                                                                                                                                                                                                                                           613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      973
 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŭ
```

3827

AGG-AGTAGAATATAAACACATAA----

-TTGCTTATGTATGCCTATTCAGAATAAAT

3878

```
RESULT 6
BQ878960
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
  밁
                      Q
                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                      Query Match
Best Local
                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            72
                              29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTACCTATTCAA 4003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTCTT----AACACCTTACACCCTTTTGTACATTTTGAATTTTTGAACCCATGTGACTGTA 3991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGTAACACTAGATTTATTTTGGGAGGGGAACCAGTAGGTTGAGGACAGGAGAGGGAAG 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGTAACACT--GATTACTTTTGGGAGGGGAACCAGTAGGTTGAGGACAGGAGAGGGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGTAGATATAAAAACATTAATTGCTTTATGCTCTTATTCTAGAATTAAAT
 TTTTATATTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTTTTTGTCACTTACTTTCTCTTTTGTACATTTTTTAATTTTGAAATTATGTGATTKTA
                                                                                                                                                                                                                                                                                                                                                                                                 Email: cgapbs-r@mail.nih.gov
Tlssue procurement: Dr. James R. Lupski
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Agencourt Bioscience Corporation
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAM13568 row: a column: 16
High quality sequence stop: 654.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens

Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 957)

1 (bases 1 to 957)

NIH-MGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGENCOURT_8231141 Lupski_dorsal_root_ganglion clone IMAGE:6182295 5', mRNA sequence BQ878960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BQ878960.1
                                                                    Similarity
                                                                                                                           168
                                                       Conservative
                                                                                                                      /note-"vector: pcmv-sport6 (Life Technologies); Site_1:
Not1; Site_2: Sal1; cDNA made by oligo-dT priming.
Directionally cloned using the following adaptors:
5'-TCGACCCACGCGTCCG-3' and
5'-GACTACTTCTACATCCCGAGCGCCCCCT(15)-3'. Size selected >
1' kb for average insert length 1.7 kb. This is a primary library, non-amplified. Library constructed by Life
Technologies and donated by J. Lupski, M.D./Ph.D. (Baylor College of Medicine) and is available through Life
Technologies."
Technologies."
194 t 1 others
                                                                                                                                                                                                                                                                                                                 /organism-"Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:6182295"
/clone_lib="Lupski_dorsal_root_ganglion'
/sex="male"
                                                                                                                                                                                                                                                                        /tissue_type="dorsal root ganglia"
/dev_stage="adult, 36 yr"
/lab_host="DHIOB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GI:22270968
                                                                   18.6%;
                                                    Score 751.8; DB 14;
Pred. No. 6.8e-135;
0; Mismatches 58;
                                                       Indels
                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ното
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST 16-AUG-2002
                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       can
                                                      Gaps
                                                                                                                                                                                           primary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      133
                            88
  60
                                                                                                                                                                 (Baylor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       þe
                                                       ω
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                           RESULT 7
BI489920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                   SOURCE
ORGANISM
                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                     밁
                                                                                               KEYWORDS
                                                                                                            VERSION
                                                                                                                           ACCESSION
                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                        749
                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     269
                                                                                               EST
                                                                                                                                  mRNA sequence.
                                                                                                                                                  603031674F1 NIH_MGC_115
                                                                                   human.
                                                                                                           BI489920.1
                                                                                                                           BI489920
                                                                                                                                                                 BI489920
```

```
841 AATCTCGGGGCGGCTTGGGTTCTTCCCTGGCCCAACGGGGGGCTTGGGAACC
                               860 TCGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCTGCTAGTGAACC 911
                                                                                                                                  TTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGAGCGTCATGGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCTGTTCCAAGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAGCTTCCCCATTGCCCCTCTGTATCTCCCAGTGCCCAGCCTTGGACACACCCTGGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTTCGTGGGAAAATGAACCAGAAGACAATCCTCGTGCTCCTCATTCTGGCCGTCATCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCCCCCGTCTTGCTGGCGTGAGAATACATTGCTCTTTTGGTTTGAATCAGCTGTCCCT
                                                                                  CCCCGTGGTCTGCAATCAGGGG---ACCGGGCCACCTGGTTTGGCCTCTACTACAACATC
                                                                                                                                                   CACTGTTGCTTCTACAAGCACCGGGG---ACGGAACCTGGTGACAATGACCACGG---CT
                                                                                                                                                                                                                                                                                                                                       AACGTGAGTGAGCTGGTGGTGGGGCCACTGCCTCACCCCTCCTACATGCGGGACGTGACT
                                                                                                                                                                                                                                                                                                                                                      AACGTGAGTGAGCTGGTGGGGGCCACTGCCTCACCCCCTCCTACATGCGGGACGTGACT
                                                                                                                                                                                                                                                                                                                                                                                                         TTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGCTGACGGCTGTGATGCGCTTTCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCTTTGCCTTGGTTTGTCCTGCTGGTGGGCAGGGTGGAGATGGGGGTGAACCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCTTTGCCTTGGTTTGTGTCCTGCTGGTGGGCAGGGGGTGGAGATGGGGGGTGAACCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTCGTGGGAAAATGAACCAGAAGACAATCCTCGTGCTCCTCATTCTGGCCGTCATCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCCCCCGTCTTGCTGGCGTGAGAATACATTGCTCTCCTTTGGTTGAATCAGCTGTCCCT
                                                                 CCCGTGGGTCTGCAATCAAGGGGACCCGGGCCCACCTTGGNTTTGGCCCCTCTACTACAAA
 892
                                                                    840
                                                                                                                                  780
                                                                                                                                                                                                                               748
                                                                                                                                                                                                                                                                                                     889
                                                                                                                                                                                                                                                                                                                                                                      628
                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                         568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   208
                                                                                                                                                                     802
                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      148
```

764 Homo

sapiens

RNA linear EST 28-AUG-2001 CDNA clone IMAGE:5172811 5',

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL COMMENT
                                                                                                                            δÃ
Ş
                                В
                                                            δÃ
                                                                                                g
                                                                                                                                                                  В
                                                                                                                                                                                             Q
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity Matches 747; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                  430
                                                                                                                               469
                                                                                                                                                                    370
   589
                                  490
                                                                                                                                                                                                   409
                                                                                                                                                                                                                                   310
                                                                                                                                                                                                                                                                   349
                                                                                                                                                                                                                                                                                                   250
                                                                                                                                                                                                                                                                                                                                  289
                                                                                                                                                                                                                                                                                                                                                              130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     70
                                                                                                                                                                                                                                                                                            TGTATCTCCCAGTGCCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGAATACATTGCTCTCCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCA 168
                                                                                                                                                                                                                                                 GAGCCGAGAGGAGCTGACGGCTGTGATGCGCTTTCTGACCCAGCGCCTGGGGCCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGAGTCCGGGAGCCCCCCACCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGT 108
                                                                                                                GCCTCCCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCTGCCCGGGA,
                                                                                                                                                                                GGTGGATGCAGCCCAGGCCCGGCCCTCGGACAACTGTGTCTTCTCAGTGGAGTTGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAGACAATCCTCGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCCTTGGTTTGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGAGTCCGGGAGCCCCC--ACCCCGTCAGGATGCAACAGAGCCCCCGTCTTGCTGGCGT
GGGGCCACTGCCTCACCCCTCCTACATGCGGGACGTGACTGTGGAGCGTCATGGAGGCCC
                                              GCCTCCCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCTGCCCGGGA
                                                                                                                                                                GGTGGATGCAGCCCAGGCCCCGGCCCTCGGACAACTGTGTCTCTCAGTGGAGTTGCAGCT
                                                                                                                                                                                                                                GAGCCGAGAGGAGCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAAGACAATCCTCGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: RODER CONTROLL ROOM REMAIL THIS GOV Email: Capabbs:remail.nih.gov Tissue Procurement: Life Technologies, Inc. CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov plate: LLAM11430 row: C column: 20 High quality sequence stop: 739.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished (1999)
Contact: Robert St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:5172811"
/clone=11b="NHH_MGC_115"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note-"organ: pooled brain, lung, testis; vector: pCMV-SPORT6; Site_1: NotI; Site_2: EcoRV (destroyed); RNA source anonymous pool of male brains, age range 23-27; 1 male lung, age 27; and 1 male testis, age 69. Library is oligo-dT primed and directionally cloned (EcoRV site is destroyed upon cloning). Average insert size 1.8 kb, insert size range 1-3 kb. Library is normalized and enriched for full-length clones and was constructed by C. Gruber (Invitrogen). Research Genetics tracking code 021. Note: this is a NIH_MGC Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17.8%;
98.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 720.4; DB 13; Pred. No. 8e-129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
648
                                                                                              489
                                                                                                                               528
                                                                                                                                                                429
                                                                                                                                                                                             468
                                                                                                                                                                                                                                                               408
                                                                                                                                                                                                                                                                                                                               348
                                                                                                                                                                                                                                                                                                                                                                 249
                                                                                                                                                                                                                                                                                                                                                                                                 288
                                                                                                                                                                                                                                                                                                                                                                                                                                 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                               228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69
                                                                                                                                                                                                                              369
                                                                                                                                                                                                                                                                                                309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ν
```

```
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 8
BG033106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
Ş
                                     B
                                                                       Ş
                                                                                                              밁
                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rocus
                                                                                                                                                                                       Query Match
Best Local Sim
Matches 716;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
   3085 AAGGTCACGGGACCCCTAATCAGAGTGGCCAATCCCTGTGTGTCGTTCCCTTGTGTCTGT 3144
                                                                                                                                                    2965 TTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTA 3024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    769
                                       61
                                                                                                                1 TTCTATCCTGCAATTTCTCCCGAATCCTGAGGGGATATCCCTATGTCCCAGCCCCTGGTA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGGGGACGGAACCTGGTGACAATGACCACGGCTCC 804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTCAACAGAGCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCA 768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTGCCCTATCACCGACGCCCCGTGCTGTTCCAAGAGTACCTGGACATAGACCAGATGAT 708
                                                           CTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCTCCCTCTCCCAGCCCTATGGAAGTCTC 3084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTCAACAGAGAGCTGCCCCAGGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCA
                                       CTCCCCCAGCCCTCAGTTTTCAGTCAAGTTCCGTCTCCTCTCCAGCCCTATGGAAGTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
plate: LLAM10109 row: k column: 08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Robert Strausberg, Ph.D. Email: cgapbs-remail.nih.gov
Tissue Procurement: DCTD/DTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BG033106 /6/ pp "
602300230F1 NIH_MGC_87 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 767)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BG033106.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BG033106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human.
                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                        159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       quality sequence start: 2 quality sequence stop: 702.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence.
                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                              /clone_lib="NIH_MGC_87"
/clone_lib="NIH_MGC_87"
/tissue_type="mammary adenocarcinoma, cell line"
/lab_host="DH10B (phage-resistant)"
/note="Organ: breast; Vector: pCMV-SPORT6; Site_1: NotI;
Site_2: SalI; Cloned unidirectionally; oligo-dT primed.
Average insert size 1.383 kb..Library enriched for
full-length clones and constructed by Life Technologies.
Note: this is a NIH_MGC Library."
192 c 216 g 200 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                           16.7%;
97.8%;
                                                                                                                                                                                       0;
                                                                                                                                                                                                         Score 675.2; DB 12; Pred. No. 4.2e-120;
                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA linear .E
s cDNA clone IMAGE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gene Collection (MGC)
                                                                                                                                                                                         Indels
                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 24-JAN-2001
E:4401919 5',
                                                                                                                                                                                       ω
••
                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      be
```

```
õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                            вм973838/с
                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                   JOURNAL
MEDLINE
                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                              719
                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCATTCTGATAC
                                                                                                                                                                                                                                                                                                                                                                                                   CAATTCTGATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGAATGAGCTGGGCCCCTGGGTGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAAGCCCCTACAACTCCAGCCACCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAAACAAAGGGTGGGCATCAAAGATGAGAAGCCAAAGCCCCTACAACTCCAGCCACCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCTGCTTCTGTGCATTTGTGTCTGCCTGCCTCATGCTCTCTATAGAGGAGGATGGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGTCCTGGGGCTGGGTTGTTTTCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                           AAAGAAATAGCAAGAGATGAGAAACAACAGAAACTTTTTTCTCTAAAAGGACTGGTTAAAT 368:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCAGGAGGGGCTGTCCAATCACATTCAGGCATGCGAATGAGCTGGGCCCTGGGTGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCTGCTTCTGTGCATTTGTGTCTGCCTGCCTCATGCTCTCTATAGAGGAGGATGGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCTTATTGGGAGTAGGAGTTGCTCCTACCCCTGTCCTGGGGCTGGGTGTGTTTCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; (
Mammalia; Eutheria; I
1 (bases 1 to 644)
Bonaldo, M. F., Lennon,
                                                                                                                                                                                                                                                                            UI-CF-EC1-ach-h-08-0-UI.sl UI-CF-EC1 Homo sapiens UI-CF-EC1-ach-h-08-0-UI 3', mRNA sequence.
University of Iowa
University of Iowa Med Labs, Iowa City, IA 52242, USA
Tel: 319 356 4866
Fax: 319 356 7171
Email: paul-mccray@ulowa.edu
Tissue Procurement: Dr. M. J. Welsh, University of Iowa
CDNA Library preparation: Dr. M. Bento Soares, University of Iowa
CDNA Library Arrayed by: Dr. M. Bento Soares, University of Iowa
DNA Sequencing by: Dr. M. Bento Soares, University of Iowa
                                                                                                                       Contact: McCray, PB
                                                                                                                                                           discovery
                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                   BM973838.1 GI:19591429
                                                                                                                                               Genome Res. 6 (9),
                                                                                                                                                                      Normalization and
                                                                                                                                                                                                                                                                                                                                                                                                     3695
                                                                                                                                                                     Lennon, G. and Soares, M.B. and subtraction: two approaches
                                                                                                                                               791-806 (1996)
                                                                                                                                                                                                        Chordata; Craniata; Vertebrata; Euteleostomi; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                        ៥
                                                                                                                                                                        facilitate
                                                                                                                                                                                                                                                                                                       cDNA clone
                                                                                                                                                                                                                                                                                                                   21-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                      gene
               Š
                                      g
                                                         Ş
                                                                                    밁
                                                                                                         δÃ
                                                                                                                                   밁
                                                                                                                                                      QY
                                                                                                                                                                                  В
                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 634
                                                                                                                                                                                                                                                        3586
                                                                                                                                                                                                                                                                                                        3526
                                                                                                                                                                                                                                                                                                                                                                                                     3406
                3886
                                                                                                                                                           3706
                                                                                                                                                                                                          3646
                                                                                                                                                                                                                                                                                                                              576
                                                                                                                                                                                                                                                                                                                                                                              636
                                                                                                                                                                                                                                 456
                                                                                                                                                                                                                                                                                516
                                                                                                                                                                                    396
                                                                                                                                                                                                                                             CTGCTGTCCCTCCTGAGGTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAGATGAGA 3645
                                                                                                                                                                                                                                                                                             GGGCCTGGCCTGGGTGGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCA 3585
                                                                                                                                                                                                                                                                                                                              CATTCAGGCATGCGAATGAGCTGGGCCCTGGGTGAGGTGGGGGGTCTGGCCTAGTGGGGAG 517
                                                                                                                                                                                                                                                                                                                                           CATTCAGGCATGCGAATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAG 3525
                                                                                                                                                                                                                                                                                                                                                                            TCAGGTGAAAAAGGCAAGCCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTCAGA 3825
                                                                                                                                                                                  GGGCCTGGCCTGGGCAGGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCA
   ACTGATTACTTTTGGGAGGGGAACCAGTAGGTTGAGGACAGGAGAGGGGAAGGGTCTTAAC
                                      AAGGAGTAGAATATAAACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAAC
                                                   CTGCTGTCCCTCCTGAGGTCTGGATTGGGGATGGGGACAAAGAATAGCAAGAGATGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155
```

Indels

0

Gaps

0

3705

397

457

3765 337

277

3945 157 3885

```
Seq primer: M13 FORWARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLYA-Yes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Clone Distribution: Researchers may obtain senetics (www.resgen.com).
15.7%;
nilarity 99.8%;
Conservative
                                                                                                                                                                                                                                                                                          /dev_stage="Adult and Fetal"
//dev_stage="Adult and Fetal"
//lab_host="DH10B (Life Technologies) (Tl phage resistant)"
//note="Organ: Lung; Vector: pT7T3-Pac (Pharmacia) with a
modified polylinker; Site_1: Ecor I; Site_2: Not I;
UI-CF-EC1 is a normalized cDNA library containing the
following tissue(s): Normal lung from adult and from fetal
day 64, day 87, week 19 and week 42. The library was
constructed according to Bonaldo, Lennon and Soares,
Genome Research, 6:791-806, 1996. First strand cDNA
synthesis was primed with an oligo-dT primer containing a
Not I site. Double stranded cDNA was ligated to an Ecor I
adaptor, digested with Not I, and cloned directionally
into pT7T3-Pac vector. The oligonucleotide used to prime
the synthesis of first-strand cDNA contains a library tag
sequence that is located between the Not I site and the
(dT)18 tail. The sequence tag for this library is
                                                                                                                                                                    TAG_SEQ-AAGTGCTTAC"
                                                                                                                                                                                              TAG_TISSUE=Normal Lung and 380-383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="UI-CF-EC1-ach-h-08-0-UI"
/clone_11b="UI-CF-EC1"
/tissue_type="Lung"
                                                                                                                                                                                                                                                     TAG_LIB-UI-CF-EC1
                                                                                                                                                                                                                                                                                  AAGTGCTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                          161 c
Score 634; DB 14;
Pred. No. 3.8e-112;
D; Mismatches 1;
                                                                                                                                          122
                                                                                                                                       9
                                                                                                                                             205
                                                                                                                                                                                                                        Epithelial Cells Tissue nos
                                                                                                                                          r
                                                      Length 644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Research
                                                                                                                                                                                                                              369-371
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
    Ş
                                            용
                                                                             δÃ
                                                                                                                     B
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 10
BQ712543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 734; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                            1517
        1637
                                                                                                                                                                                                                             1457 GAACAGAACCAGGGCCTCCCCCTGCGGCGACACCACTCAGATCTCTACTCGCACTACTTT 1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                     74
                                                                                                                                                                                           36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96
                                                                                                             GGGGGTCTTGCGGAAACGGTGCTGGTCGTCAGATCTATGTCCACCTTGCTCAACTATGAC
GGCTACATCAGCTCGGCATTCCTCTTTGGTGCTACTGGGAAGTACGGGAACCAAGTGTCA
                                                        TATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCATACAAATACGATTCTATGCCACG
                                    TATGTGTGGGATACGGTCTTCCACCCCAGTGGGGCCCATAGAAATACGATTCTATGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TAPACAATAAATGGGCCCAAAAAAAAAAAAAAAAAAA 4040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TAAACAATAAATGGGCCCAAAAAAAAAAAAAAAAA 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTTACACCCTTTTGTACATTTTGAATTTTGAACCATGTGACTGTATTACCTATTCAAAA 4005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTTACACCCTTTTGTACATTTTGAATTTTGAACCATGTGACTGTATTACCTATTCAAAA 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTGATTACTTTTGGGAGGGGAACCAGTAGGTTGAGGACAGGAGGGGAAGGGTCTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BQ712543 985 bp

AGENCOURT_8539807 NIH_MGC_113 H

5', mRNA sequence.

BQ712543

BQ712543.1 GI:21851442

EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. Mark Watson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cDNA Library Preparation: Rubin Laboratory
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Agencourt Bloscience Corporation
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e: LLCM2521 row: 1 column: 19 quality sequence stop: 542.
                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                             /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:6303138"
/clone="ID="NIH_MGC_113"
/clone="IDHOB (phage-resistant)"
/lab_host="DH10B (phage-resistant)"
/notye="Organ: spleen; Vector: pOTB7; Site_1: XhoI; Site_2:
/notye="Organ: spleen; Vector: pOTB7; Directionally cloned
into EcoRI,XhoI sites using the following 5' adaptor:
GGCACGAG(G). Library constructed by Ling Hong in the
laboratory of Gerald M. Rubin (University of California,
Berkeley) using ZAP-cDNA synthesis kit (Stratagene) and
Superscript II RT (Life Technologies). Note: this is a
NH_MGC Library."
11 a 280 c 290 g 204 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 to 985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ocation/Qualifiers
                                                                                                                                                                                                                                                                                          15.6%;
                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                      Score 631.4; DB 14; Length 985;
Pred. No. 1.2e-111;
0; Mismatches . 16; Indels 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              985 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear EST 16-JUL-2002 CDNA clone IMAGE:6303138
                                                                                                                                                                                                                                                                        13;
                                                                                                                                                                                                                                                                    Gaps
  1696
                                                                         1636
                                                                                                                                                    1576
                                      193
                                                                                                                 133
                                                                                                                                                                                           73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ь́е
                                                                                                                                                                                                                                                                      8
```

```
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 11
BQ720486
LOCUS
                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      G--CTGGAAAGGATTTGG--TGGCCTGGGTGACAGCTGGTTTT 2206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGACCCTTGGGCCCCCCCCCCTGTGGGATTTTCAGTGACTTCCATCAACAATGAGACCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGACCCTTGGGCCCCCAC----TGTGGATTTCAGTGACTT-CATCAACAATGAGACCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACAGCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACAGCAACAAGTGGGGTCACCCCCGGGGCTACCGCATCCAGATGCTCAGCTTTGCTGGA 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCAGGCCGTTCCTCGTGGGAAGCGCCACCCCTCGCTACCTGTACCTGGCCAGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCAGGACTGGAGAACTGGGTCTGGGCCGAGGATATGGTCTTTGTCCCCATGGCTGTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGCACACCCTGGGCACGGTCCACACCCCACAGCGCCCACTTCAAGGTGGATCTGGATGTA 1756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCTGGAAAAGGATTTGGGTGGGGCTGGGGGGACAGCTGGGTTT 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCGGAAGCTGCTGGAGATGGAG
                                                                                                                                                                                                                            Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. James R. Lupski
                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 966)

NIH-MGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGENCOURT_8305121 Lupsk1_sympathetic_trunk Homo IMAGE:6193046 5', mRNA sequence.
                                                                                                                                                                                                                                                            Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                           Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                          BQ720486.1
                                                                                                               Plate: LLAM13596 row: a column:
                                                                                                                            found through the I.M.A.G.E. Consortium/LLNL at:
http://lmage.llnl.gov
                                                                                                                                                          CDNA Library Preparation: Life Technologies, Inc. CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Agencourt Bioscience Corporation Clone distribution: MGC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                          numan
                                                                               quality sequence stop: 434.
Location/Qualifiers
                               /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:6193046"
/clone_lib="Lupski_sympathetic_trunk"
                                                                                                                                                                                                                                                                                                                                                                                                                          GI:21859383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ar EST 16-JUL-2002 sapiens cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         253
                                                                                                                                                            be
```

```
RESULT 12
BG718238
LOCUS
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ.
                                                                                                          밁
                                                                                                                             Š
                                                                                                                                                         밁
                                                                                                                                                                            Ş
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 655
                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                            661
                                                                                                          601
                                                                                                                                  653
                                                                                                                                                         541
                                                                                                                                                                                 594
                                                                                                                                                                                                         481
                                                                                                                                                                                                                                534
                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                              474
                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                            414
                                                                                                                                                                                                                                                                                                                                                                            354
                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                           294
                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCGGGAGCCCCCCACCCCGTCCAGGAGCCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAA 113
                                                                                                                                                         CAATGCCTCACCCTTCTTTTGCGAGACCCCACTGGTGGACCGCCATGAAATGCCCCTG
                                                                                                                                                                                                       CCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCCACCTGCCCGGGAGGCAC
                                                                                                                                                                                                                                                                                                                 ATGCAGCCCAGGCCCGGCCCTCGGACAACTGTGTCTCTCAGTGGAGTTGCAGCTGCCTC
                                                                                                                                                                                                                                                                                                                                                     GAGAGGAGCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGGCCAGGGCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                  GAGAGGAGCTGACGGCTGTGATGCGCTTTCTGACCCAGCGGCTGGGGCCAGGGCTAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                    CTCCCAGTGCCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                CTCCCAGTGCCCAGCCTTGGACACACCCTGGCCAGAGCCAGCTGTTTGCAGACCTGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGTGGGCAGGGGTGGAGATGGGGGTGAACCCAGCCTTCCCCCATTGCCCCCTCTGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAATCCTCGTGCTCCTCATTCTGGCCGTCATCACCATCTTTGCCTTGGTTTGTGTCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TACATTGCTCTCTTTGGTTGAATCAGCTGTCCCTCTTCGTGGGAAAATGAACCAGAAGA 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCGGGAGCCCCCACCCCGTCCAGGAGCCAACAGAGCCCCCGTCTTGCTGGCGTGAGAA
                                                                                                      CCCTATCACCGACGCCCCGTGCTGTTCCAAGAGTACCTGGACATAGACCAGATGATCTTC
                                                                                                                                                                                 CACTGCCTCACCCCTCCTACATGCGGGACGTGACT-GTGGAGCGTCATGGAGGCCCCCTG
                                                                                                                                                                                                                                                                                                      ATGCAGCCCAGGCCCGGCCCTCGGACAACTGTCTTCTCAGTGGAGTTGCAGCTGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGTGGGCAGGGGGGAGATGGGGGGTGAACCCAGCCAGCTTCCCCATTGCCCCTCTGTAT
                                                            CACCGACACCTGCCCCAGGTTCTCGGGGGGTTT
                                                                                  AACAGAGAGCTGCCCCAGGCTTCTGGGCTTCT 744
                                                                                                                                                                                                                                                         CCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGGAGCCCCCCACCTGCCCGGGAGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            655;
 BG718238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5'-GACTAGTTCTAGATCGCGAGCGGCCCCT(15)-3'. Size selected > 1 kb for average insert length 1.9 kb. This is a primary library, non-amplified. Library constructed by Life Technologies and donated by J. Lupski, M.D./Ph.D. (Baylor College of Medicine); available through Life Technologies."

371 c 226 g 216 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /dev_stage="adult, 16 yr"
/lab_host="hH10B"
/note="vector: pcMv-sPORT6 (Life Technologies); Sit
NotI; Site_2: SalI; cDNA made by oligo-dT priming.
Directionally cloned using the following adaptors:
5'-TCGACCCACCGGTCCG-3' and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /tissue_type="sympathetic trunk"
/dev_stage="adult, 16 yr"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15.48;
94.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 622.4;
Pred. No. 6.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
 694
þ
                                                            692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 14;
5.3e-110;
hes 36;
 mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels 1;
linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 966;
EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
 08-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Site_1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        233
                                                                                                                                                         600
                                                                                                                                                                                 652
                                                                                                                                                                                                         540
                                                                                                                                                                                                                                593
                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                              533
                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                            473
                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                            413
                                                                                                                                                                                                                                                                                                                                                                                                                           353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲,
õ
                      ₽
                                          δÃ
                                                                      밁
                                                                                            δõ
                                                                                                                     밁
                                                                                                                                          δÃ
                                                                                                                                                                     ₽
                                                                                                                                                                                          Q
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                       ρy
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                    390
                                                                       246
                                                                                                270
```

66

90 GCCCCCGTCTTGCTGGCGTGAGAATACATTGCTCTCTTTGGTTGAATCAGCTGTCCCTC

149

185 209 125

245 269 GCCCCGTCTTGCTTGGCGTGAGAATACATGCTCTCCTTTGGTTGAATCAGCTGTCCCTC

GCCAGCTGTTTGCAGACCTGAGCCGAGAGGAGCTGACGGCTGTGATGCGCTTTCTGACCC AGCTTCCCCATTGCCCCTCTGTATCTCCCCAGTGCCCAGCCTTGGACACACCCTGGCCAGA

389 304 329

449 364

AGCGGCTGGGGCCAGGGCTGGTGGATGCAGCCCAGGCCCGGCCCTCGGACAACTGTGTCT

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                    BASE COUNT
                                                                       Query Match
Best Local (
                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                  source
                                                                    Local
              30 GACTACCGGGAACCTCAGCCAGAGTCCGGGGAGCCCCCACCCCGTCCAGGGGGGCCAACAGA
672;
                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Robert Strausberg, Ph.D.

Email: cgapbs r@mail.nih.gov
Tissue Procurement: Miklos Palkovits, M.D., Ph.D.

CDNA Library Preparation: Michael J. Brownstein (NHGRI), Sh
Toshiyuki and Piero Carninci (RIKEN)
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can i
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAM10746 row: a column: 05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA sequence.
BG718238
BG718238.1 GI:13997425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     602696217F1 NIH_MGC_97 Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1. (bases 1 to 694)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           human
                                                                       Similarity
                                                                                                                                      124
                                                                                                                                                                                                                                                                                                                                                                                  quality sequence stop: (
Location/Qualifiers
                                                           Conservative
                                                                                                                                 /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:4828300"
/clone_lib="NIH_MGC_97"
                                                                                                                                                                                                                                                                                          /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                       . . 694
                                                                       15.1%;
                                                           0
                                                                       Score 608.6; DB 12; Pred. No. 3e-107;
                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                    692.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cDNA clone IMAGE:4828300
                                                            14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gene Collection (MGC)
                                                            Indels
                                                                                         Length
                                                                                           694;
                                                            <u>ن</u>
                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Shiraki
   65
                              89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ьe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ń
                                                            Ģ
```

δÃ

В δÃ 밁 δ 8

δÃ ₽

밁 Ş В

Length 622;

Indels

w ••

Gaps

ω

3656 445

385

505

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 13
BM992567/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGA-CATAGACCAGATGATCTTCAACAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGGAGCGTCATGGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCTGTTCCAAAGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTCAGTGGAGTTGCAGCTGCCTACCCAAGGCTGCAGCCCTGGCTCACTTGGACAGGGGGA 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGAGCGTCATGGAGGCCCCCTGCCCTATCACCGACGCCCCGTGCTGTTCCAAGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTGCAGCCCTGGCTCACTTGGACAGGCGGA 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BM992567
BM992567.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cDNA Library preparation: Dr. M. Bento Soares, University of Iowa CDNA Library Arrayed by: Dr. M. Bento Soares, University of Iowa DNA Sequencing by: Dr. M. Bento Soares, University of Iowa Clone Distribution: Clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            022 bp mRNA linear UI-H-D70-att-f-05-0-UI.sl NCI_CGAP_DT0 Homo sapiens BM9D2567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. Jose Mercuende
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
1 (bases 1 to 622)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                primer: M13 FORWARD
                                               /lab_host="DHIDD (Life Technologies)"
/lab_host="DHIDD (Life Technologies)"
/note-"Organ: Lung; Vector: pT7T3-Pac (Pharmacia) with a modified polylinker; Site_1: EcoR I; Site_2: Not I; NCI_CGAP_DT0 is a cDNA library containing the following tissue(s): Metatastic Chondrosarcoma in Lung. The library was constructed according to Bonaldo, Lennon and Soares, Genome Research, 6:791-806, 1996. First strand cDNA synthesis was prined with an oligo-dT primer containing a Not I site. Double stranded CDNA was ligated to an EcoR I adaptor, digested with Not I, and cloned directionally into pT7T3-Pac vector. The oligonucleotide used to prime sequence that is located between the Not I site and the (dT)18 tail. The sequence tag for this library is
                                                                                                                                                                                                                                                                                                   /clone_lib="NCI_CGAP_DTO"
/tissue_type="Metastatic Chondrosarcoma"
/dev_stage="Adult"
                                                                                                                                                                                                                                                                                                                                                            /clone="IMAGE:5864068"
                                                                                                                                                                                                                                                                                                                                                                         /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GI:19711956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata; Craniata; Vertebrata; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      University of Iowa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST 17-JUN-2002
CDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            543
                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                             ACCESSION
VERSION
                                                                                                                                                                                                                                                                                LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                    RESULT
U25753
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Sin
Matches 620;
                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                         4017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            264
                                                                                                                                                                                                                                                                                                                                                                                                                                                            85
                                                                                                                                                                                                                                                                                                                                                                                        25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTTTTTCTCTAAAGGACTGGTTAAATCAATTCTGATACAGCCTTACAATACAATAGTAT 3716
Homo sapiens
Homo sapiens
Eukaryota; Metazoa; Chordata; Crauraur,
Mammalla; Eutheria; Primates; Catarrhini; Hominidae, ...

1 (bases 1 to 1270)
1 (bases 1 to 1270)
1 (bases 1 to 1270)
1 (bases 1 to 1870)
1 Harshman, K., Bell, R., Rosenthal, J., Katcher, H., Miki, Y., Swenson, J., Gholami, Z., Frye, C., Ding, W., Dayananth, P., Eddington, K., Norris, Gholami, Z., Frye, C., Ding, W., Dayananth, P., Eddington, K., Norris, F.H., Bristow, P.K., Phelps, R., Hattler, T., Stone, S., Shaffer, D., F.H., Bristow, P.K., Tran, T., Lai, M., Rosteck, P.R., Jr., Skolnick
                                                                                                                                                                                                                                                                                                                                                                                      TGGGCCCAAAAAAAAAAAAAAAAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                         TGGGCCCAAAAAAAAAAAAAAAAAA 4040
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTGTACATTTTGAATTTTGAACCATGTGACTGTATTACCTATTCAAAATAAACAATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTGTACATTTTGAATTTTGAACCATGTGACTGTATTACCTATTCAAAATAAACAATAAA 4016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATAAACACATAATTGCTTATGTATGCCTATTCAGAATAAATGGGTAACACTGATTACTT 3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGCAAGCCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTTCAGAAAGGAGTAGAA 3836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGAGGTCTGGATTGGGGATGGGGACAAAGAAATAGCAAGAGATGAGAAACAACAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGAATGAGCTGGGCCCTGGGTGAGGTGGGGGTCTGGCCTAGTGGGGAGGGGCCTGGCCT 3536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGGGAGGGGAACCAGTAGGTTGAGGACAGGAGAGGGGAAGGGTCTTAACACTTACACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATAAACACATAATTGCTTATG-ATGCCTATTCAGAATAAATGGGTAACACTGATTACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGCAAGCCACAGAAATGTGTATAGCGCACTTCCCATTTGTGTTTTCAGAAAGGAGTAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGAGGTCTGGATTGGGGATGGGGACAAAGAATAGCAAGAGATGAGAAACAACAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGTGGGGCAGGCCTGGCCTGGTCCAGGCTTGGGCTCCATTCCCATCACTGCTGTCCCT 3596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGTGGGCCAGGCCTGGCCTGGTCCAGGCTTCGGCTCCATTCCCATCACTGCTGTCCCT
                                                                                                                                                                                                                                             , mRNA sequence.
U25753
                                                                                                                                                                                                                                                                                U25753 1270 k
HSU25753 normal female breast
                                                                                                                                                                                            human
                                                                                                                                                                                                                               U25753.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACTGTTCGG.
TAG_LIB=UI-H-DTO
TAG_TISSUE=lung meta
TAG_SEQ=AACTCTTCGG"
a 151 c 119 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 587; DB 14;
Pred. No. 4.5e-103;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                               1270 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                metatastic chondrosarcoma
                                                                                                                                                                                                                                                                                tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 198
                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               r
```

146

205

3956

Homo

sapiens cDNA clone

linear

```
.
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                          ρy
                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                       В
                     Ş
                                                 망
                                                                        õ
                                                                                                     밁
                                                                                                                                                        밁
                                                                                                                                                                              õ
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                밁
멅
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 606; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                        1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          432
                                                                                                     480
                                                                                                                               910
                                                                                                                                                         420
                                                                                                                                                                                   850
                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                            670
                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                010
                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      492
600
                                                                                                                                                                                                             360
                                                                                                                                                                                                                                     790
                                                                                                                                                                                                                                                                                        730
                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Н
                                                                                                                                                                                                                                                                                                                                 CGTGCTGTTCCAAGAGTACCTGGACATAGACCAGATGATCTTCAACAGAGAGCTGCCCCA
                                                                                                                                                                                                                                                                                                                                                                     GGCAGGCAACCCCAACGTGAGTGAGCTGGTGGGGGGCCACTGCCTCACCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCAGGCAACCCCAGCCCAACGTGAGTGAGCTGGTGGT-GGGGCCACTGCCTCACCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCACTTGGACAGGGGGA-GCCCCCCACCTGCCCGGGAGGCACTGGCCATCGTCTTCTTT 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTCGGACAACTGTGTCTCTCAGTGGAGTTGCAGCTGCCTCCCAAGGCTGCAGCCCTGG 491
                                                                                                                                                                                                                        AATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTGGTTTGGCCTCTA
                                                                                                                                                                                                                                                                             GGCTTCTGGGCTTCTCCACCACTGTTGCTTCTACAAGCACCGGGGACGGAACCTGGTGAC
             GATCCCAGACAATGGCACAG 1049
                                                 CCACAAGGCCCTTGACCCTGCCCGCTGGACTATCCAGAAGGTGTTCTATCAAGGCCGCTA
                                                                                                                                                         CTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACGTGGGCTTGGAGCTGCTAGTGAA
                                                                                                                                                                                   CTACAACATCTCGGGCGCTGGGTTCTTCCTGCACCACGTGGGCCTTGGAGCTGCTAGTGAA 909
                                                                                                                                                                                                                                                               GGCTTCTGGGCTTCTCCATCACTGTTGCTTCTACAAGCGCCGGGGACGGAACCTGGTGAC
                                                                                                                                                                                                                                                                                                                   CATGTTGTTCCAAGAGTACCTGGACATAGACCAGATGATCTTCGACAGAGAGCTGCCCCA
GATCCCAGACAATGGCACAG
                                                                              AATGACCACGGCTCCCCGTGGTCTGCAATCAGGGGACCGGGCCACCTAGTTTGGCCTCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ,M.H., Shattuck-Eldens,D. and Kamb,A. Comparison of the positional cloning methods used BRCA1 gene Hum. Mol. Genet. 4 (8), 1259-1266 (1995) 96090243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Russell Bell
Myriad Genetics, Inc.
390 Wakara Way, Salt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Wakara Way, Salt Lake City,
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="Organ: pooled; Vector: lambda gt10; multi-tissue normalized short-fragment cDNA library used in cDNA selection experiments per Parimoo et al., 1991, Proc. Natl. Acad. Sci. USA, 88: 9623-9627."

a 361 c 359 g 273 t 1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /map="17q21; between D17S1321 and D17S1325"
/clone="1308:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="normal female breast tissue"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'tissue_type="normal breast"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 567; DB 1 pred. No. 3e-99; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       84108,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1270;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to isolate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                            1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                      539
                                                                                                                               969
                                                                                                                                                         479
                                                                                                                                                                                                                                     849
                                                                                                                                                                                                                                                               359
                                                                                                                                                                                                                                                                                         789
                                                                                                                                                                                                                                                                                                                  299
                                                                                                                                                                                                                                                                                                                                            729
                                                                                                                                                                                                                                                                                                                                                                      239
                                                                                                                                                                                                                                                                                                                                                                                                669
                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                    599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
```

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
BI818437
LOCUS
                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                 Qy
                                                        B
                                                                                     QΥ
                                                                                                                                망
                                                                                                                                                                  Qy
                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Sim
Matches 610;
                                                                                                                                                                                                                                                                                                                        1858
                                                                                                                                                                                                                                                                                                                                                                                 1798 TGTCCCCATGGCTGTGCCCTGGAGCCCTGAGCAGCAGCTGCAGAGGCTGCAGGTGACCCG 1857
                                                                                                                                                                      1978
                                                                                                                                                                                                                                                1918
                                                                                                                                                                                                                                                                                                                                                             153
                                                                                                                                  333
                                                                                                                                                                                                           273
                                                                                                                                                                                                                                                                                   213
AGCGTTTTCAATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAAC
                                            TGGGAGAGGTACCAGCTGGCTTGTGACCCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGC
                                                                                                                                CCTGTACCTGGCCAGCAACCACAGCAACAAGTGGGGTCACCCCGGGGCTACCGCATCCA 1977
                                                                                                                                                                                                                                                                                   GAAGCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTA
                                                                                                                                                                                                                                                                                                   GAAGCTGCTGGAGATGGAGGAGCAGGCCGCCTTCCTCGTGGGAAGCGCCACCCCTCGCTA 1917
                                                                                                                                                                                                                                                                                                                                                             TGTCCCCATGGCTGTGCCCTGGAGCCCTGAGCACCAGCTGCAGAGGCTGCAGGTGACCCG
                                                                                         CTGGGAGAGGTACCAGCTGGCT--GTGACCCAGCGGAAGGAGGAGGAGCCCAGTAGCAGC
                                                                                                                                                                      GATGCTCAGCTTTGCTGGAGAGCCGCTGCCCCAAAACAGCTCCATGGCGAGAGGCTTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              found through the I.M.A.G.E. Consortium/LINL at: http://image.llnl.gov plate: LLAM11433 row: k column: 03 High quality sequence stop: 755.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 788)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BI818437
603032714F1 NIH_MGC_115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA sequence.
BI818437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Life Technologies,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BI818437.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ODNA Library Preparation: Life Technologies, Inc. CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               153
                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note-"Organ: pooled brain, lung, testis; Vector: pCMV-SPORTG, Site_1: NotI; Site_2: EcoRV (destroyed); RNA source anonymous pool of 6 male brains, age range 23-27; 1 male lung, age 27; and 1 male testis, age 69. Library is oligo-dT primed and directionally cloned (EcoRV site is oligo-dT primed and directionally cloned (EcoRV site is destroyed upon cloning). Average insert size 1.8 kb, insert size range 1-3 kb. Library is normalized and enriched for full-length clones and was constructed by C. Gruber (Invitrogen). Research Genetics tracking code 021. Note: this is a NIH_MGC Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:5174138"
/clone_lib="NIH_MGC_115"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                   13.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 551.8; DB 1
Pred. No. 2.7e-96;
0; Mismatches 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           788
Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp mRNA LIHEGA LL. sapiens cDNA clone IMAGE:5174138
                                                                                                                                                                                                                                                                                                                                                                                                                                       22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST 04-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                      2037
                                                                                                                                                                                                                                                                                                                                                             212
                     2155
                                                          452
                                                                                             2095
                                                                                                                                  392
                                                                                                                                                                                                                                                                                       272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ьe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ũ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                       4.
```

```
Š
  В
           ş
                     밁
                             Ş
                                       β
                                                          В
                                                                   δÃ
                                                                             밁
                                                                                      Ş
                                                                                                 밁
2275 CCGACCCTATAACTTCTTTGACG-AAGACCCCTCCTTCTACTCTGCCGACTCCATCTACT 2333
                                                        453 AGCG-TTTCAATCAGAATGACCCTTGGGCCCCCACTGTGGATTTCAGTGACTTCATCAAC 511
```

Search completed: May 20, 2003, 07:58:03 Job time: 4970 secs

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                          Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. score grea and is der
                                                                                                                                                                                                                   4095
2536.5
457.5
                                                                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           is derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           greater
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein search, using sw model
                                                                                                                                                                                                                                                                                                                                       Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-081-408-2
4095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        May 20, 2003, 07:58:08; Search time 64,4203 Seconds (without alignments)
1578.232 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MNQKTILVLLILAVITIFAL.....QAAACAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        is the number of results predicted by chance to later than or equal to the score of the result being the data analysis of the total score distribution
                                                                                                                                 100
61
11
8
8
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A_Geneseq_101002:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 5.1.5
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                             40.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1984.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1988.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1990.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1991.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*
                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /SIDS2/gcgdata/geneseq/geneseqp-embl
                                                                  248
712
687
759
300
670
                                                                                                                                                                                                                                                                                                                                          BB
                                                                                                                                                                                                                                                                                                                                          IJ
      ABB92504
ABB92082
ABB92910
AAR94370
AAB42952
ABB92909
                                                                                                                                                                                   AAY03219
AAU84261
ABP41516
ABB91435
                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             908470
                                                                                                                       Human ovarian anti
Herbicidally activ
Herbicidally activ
Herbicidally activ
Herbicidally activ
A. niger strain M-
Human ORFX ORF2716
Herbicidally activ
                                                                                                                                                                                                                                                                                                                                       Description
                                                                                                                                                                                                                                               Amino acid sequenc
Human endometrial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    to have a being printed,
   RESULT 1
AAV03219
ID AAV03219
AAV AAV0
XX AAV0
XX AAV0
XX AAV0
XX AAV0
XX Huma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY03219 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human; vascular adhesion lymphocyte; inhibition; a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAY03219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Amino acid sequence of the vascular adhesion protein-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       115
```

	4444449935545544444449666666666666666666	
	115 106.5 106.5 106.5 106.5 104.5 104.5 102.5 102.5 102.5 102.5 100.5 10	
	G C G G G G G D D D D D D D D D D D D D	
	2675 6526 6526 6527 6527 6527 6527 7394 7541 11454 7541 11257 7518 11257 7518 11257 7518 11257 7518 11257 7518 11257 7518 7535 7535 7535	
	8 22 2 3 2 3 2 4 1 1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
ALIGNMENTS	AAB07564 AAR3999 ABB92424 AAR3999 ABB92424 ABG13153 AAB272407 ABB67526 ABG07023 AAB6757329 AAG65914 AAW04254 AAW1648 AAW174152 AAW272189 AAW1648 AAW30811 AAW174169 AAW174169 AAW174169 AAW174169 AAW174169 AAW30811 AAW174169 AAW30811 AAW174169 AAW30811 AAW174169 AAW30811 AAW172189 AAW30811	
	_	
	protein encoded by Rat Choline Kinase Herbicidally activ Novel human diagno Lysine oxidase pro Drosophila melanog Novel human diagno Mouse ischaemic co Amino acid sequenc Human Factor V. Human Fichia coli perotein Cytochrome P450 de Cytochrome P450 dake Human Ll cell adhe Human Ll cell adhe Human bolypeptide Phuman secreted pro Human	

/note= Misc-difference 137 Misc-difference Misc-difference Misc-difference Misc-difference Misc-difference Misc-difference Misc-difference Misc-difference Homo sapiens /note= /note-294 /note-/note**-**232 /note= "potential O-glycosylation 679 /note= "potential O-glycosylation 47 Location/Qualifiers "potential N-glycosylation "potential N-glycosylation site" "potential N-glycosylation "potential N-glycosylatin site" "potential O-glycosylation "potential N-glycosylation n protein-1; VAP-1; endothelial cell; amine oxidase. site" site" site" site" site

(first entry)

Protein; 763

Ą

```
В
          Š
                             밁
                                            δÃ
                                                                                  Š
                                                                                                                                            Query Match
Best Local S
Matches 763
                                                                                                                                                          This is the nucleotide sequence encoding the human vascular adhesion protein-1 (VAP-1) used in the method of the invention. The method involves manipulating VAP-1 mediated binding of endothelial cells to lymphocytes which comprises inhibiting the enzymatic activity of amine oxidase in endothelial cells, and potentiating the enzymatic activity of endothelial cells.
                                                                                                                                                                                                                                              Nucleic acid encoding a novel human endothelial cell adhesion protein designated VAP-1 - having an adhesive function and an exidase function useful for manipulating VAP-1 mediated binding endothelial cells to lymphocytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Domain
                                                                                                                                                                                                                              Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Peptide
                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                            (BIOT-)
                                                                                                                                                                                                                                                                                                                                                               23-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                 22-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                      WO9853049-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Peptide
          121
                             61
                                                61
                          ADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPP 120
                                                                         MNQKTILVLLILAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLF
                                                                                                                                                                                                                                                                                               1999-131690/11.
DB; AAX28632.
          AREALAIVFFGROPOPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDID
                                                               MNQKTILVLLILAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLF
Similarity
                                                                                                                                                                                                                                                                                                                                            BIOTIE THERAPIES LTD
                                                                                                                                                                                                                             Fig 1; 66pp;
                                                                                                                                                                                                                                                                                                                         Jalkanen
                                                                                                                                           763
                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                               97US-0862433
                                                                                                                                                                                                                                                                                                                                                                                 98WO-FI00429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note= "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "1624..637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "
597..601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note= "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "368..375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note= "359..361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "\
323..329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "
264..277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "
259..262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note- "
170..174
                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note= "N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note-
                                                                                                                                                                                                                                                                                                                         s
                                                                                                               100.0%;
                                                                                                                                                                                                                             English.
                                                                                                                                                                                                                                                                                                                         Salmi M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8V.
                                                                                                                                                                                                                                                                                                                                                                                                                                       "transmembrane domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "potential N-glycosylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "V8 peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "V8 peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  peptide"
                                                                                                      0,
                                                                                                               Score 4095;
Pred. No. 0;
                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                         Smith DJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        tryptic peptide"
                                                                                                                         BB
                                                                                                      0;
                                                                                                                        20;
                                                                                                      Indels
                                                                                                                        Length
                                                                                                                         763;
                                                                                                                                                                                                                                                       l an amine
ding of
                                                                                                     0
                                                                                                     Gaps
          180
                                                                60
                                                                                  60
                                                                                                     0
```

```
RESULT 2
AAU84261
                                                                                                                                                                                                                                                                                                                                                                                           80
                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
δ
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                            07-FEB-2002
                                                                                                                                                                                              Human
                                                                                                                                                                                                                08-MAY-2002
                                                                                                                                                                                                                                                     AAU84261 standard;
                 WPI; 2002-179967/23
                                                                       31-JUL-2000; 2000US-221735P
                                                                                        31-JUL-2001; 2001WO-US24104
                                                                                                                              WO200209573-A2
                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                   AAU84261;
                                                    (BGHM ) BRIGHAM & WOMENS HOSPITAL INC
                                                                                                                                                                  DNA microarray;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                             AEDMVEVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SLKSPVPPGFAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDID
                                                                                                                                                                                                                                                                                                             DSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                     PSGAIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PSGAIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW
                                                                                                                                                                                              endometrial
                                                                                                                                                                           endometrial cancer; differential
                                                                                                                                                                                                              (first entry)
                                                                                                                                                                  protein microarray.
                                                                                                                                                                                             cancer related
                                                                                                                                                                                                                                                     Protein;
                                                                                                                                                                                                                                                     729
                                                                                                                                                                                                                                                    B
                                                                                                                                                                                             protein, AOC2.
                                                                                                                                                                          expression;
                                                                                                                                                                                                                                                                                                                                                                                          660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                       720
                                                                                                                                                                                                                                                                                                                                                                          660
                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
```

```
οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                      ő
                                                                                                                           В
                                                                                                                                                          Ş
                                                                                                                                                                                              문
                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                         γ
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cc suspected of having endometrial cancer comprising determining the cappression of a set of nucleic acid molecules or expression products in can endometrial sample suspected of being cancerous, where the set of concleic acid molecules comprises at least 2 nucleic acid molecules composed as an array of at least 2 of the 50 cc nucleic acids bound to a solid substrate. Also included is a solid-phase cc protein microarray comprising at least 2 antibodies or its antigen cc binding fragments, that specifically bind at least 2 different cp polypeptides from the 50 fully defined sequences as given in the cc specification, fixed to a solid substrate. The methods and arrays are cc useful for the diagnosis of endometrial cancer, selecting and monitoring treatment regimes and identification of lead compounds useful for the creatment of endometrial cancer. The present sequence is one of 50 proteins differentially expressed between cancerous and non-cancerous
                         õ
                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Diagnosing endometrial cancer comprises determining expression of nucleic acid molecules or expression products that are differentially expressed in normal and malignant endometrium -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 177
595
                              599
                                                               535
                                                                                                539
                                                                                                                               475
                                                                                                                                                                481
                                                                                                                                                                                              415
                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                355
                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                295
                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                               235
                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MNQKTILVLLILAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLF
                                                                                                                                                                                                              APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVMDTVFH
                                                                                                                                                                                                                                                                                                                                                 SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV
                                                                                                                                                                                                                                                                                                                                                                                            HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RHLKDVELPKAPIFLSST - - FNYNGSTLAAVHATPRGLRSRERTTWIGLYHNISGVGLFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MHLKIVLAFLALSLITIFALAYVLLTSPGGS----SQPPHCPSVSHRAQPWPHPGQSQLF
                                                                                      VWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWG
                                                                                                                                              PSGAIEIRFYATGYISSAFLFGATG--KYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENW
                                                                                                                                                                                                                                                                                               YEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ
                    HPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTV
                                                               VVAEDYVFKPVAAPWNPEHWLQRPQLTRQVLGKEDLTAFSLGSPLPRYLYLASNQTNAWG
                                                                                                                               PNGALEGRVHATGY INTAFLKGGEEGLLFGNRVGERVLGTVHTHAFHFKLDLDVAGLKNW
                                                                                                                                                                                             AVQLLPGAVCVFEEAQGLPLRRHHNYLQNHFYGGLASSALVVRSVSSVGNYDY IWDFVLY
                                                                                                                                                                                                                                                                                                                                SLRSRNSPGPLPPLQFSPQGSQYSVQGNLVVSSLWSFTFGHGVFSGLRIFDVRFQGERIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               483;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             33; Page 131-134; 233pp; English.
                                                                                                                                                                                                                                                              YEVSVQECVSIYGADSPKTMLTRYLDSSFGLGRNSRGLVRGVDCPYQATMVDIHILVGKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               relates to diagnosing endometrial cancer in a sunaring endometrial cancer comprising determining
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61.9%;
63.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 2536.5;
Pred. No. 6.3e<sup>o</sup>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .3e-247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56
                                                                                                                                                                                                                                                                                                                                354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                              959
                                                                                              598
                                                                                                                               534
                                                                                                                                                                538
                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                414
                                                                                                                                                                                                                                                                                                                                                                                               294
627
                                                               594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.
```

```
RRSULT 3
ABP4151
IID ABP42
XX ABP4
XX Huma
XX Infl
KW Card
KW Gard
KW Gard
KW Gard
KW Gard
XX ABP4
XX 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human; ovarian antigen; ovary; ovarian; breast; cancer; tumour; ovarian cancer; breast cancer; tumour; reproductive system disorder; infertility; pregnancy disorder; anovulation; polycystic ovary syndror PCOS; ovarian cyst; dysmenorrhoea; endocrihe disorder; infection; inflammatory condition; immune disorder; blood disorder; eardiovascular disorder; respiratory disorder; neurological disorder; gastrointestinal disorder; urinary system disorder; drug screening; gene therapy; chromosome mapping; forensic analysis; neuroprotective; antibody preparation; cytostatic; immunomodulatory; neuroprotective;
                                                                                                                                                               The invention relates to 2175 novel human ovarian antigens (ABP41054-ABP43228) and to cDNAs encoding them (ABP54131-ABD56305), and also encompasses polypeptides 90% identical and polynucleotides 95% identical to the sequences of the invention. The invention additionally relates to recombinant vectors and host cells comprising human ovarian antigen polynucleotides, antibodies against human ovarian antigens, and the use of ovarian antigen polynucleotides and polypeptides in diagnosing, treating, prognosing or preventing various ovary and/or breast-related disorders. Such conditions include ovarian cancer and breast cancer, and metastatic tumours of ovarian or breast origin, reproductive system disorders, infertility, disorders of pregnancy, anovulation, polycystic ovary syndrome, ovarian cysts, and dysmenornhoea), endocrine disorders, infections (e.g., chlamydia, HIV, toxoplasmosis, and toxic charges and infertions (e.g., chlamydia, HIV, toxoplasmosis, and toxic charges and infertions (e.g., chlamydia, HIV, toxoplasmosis, and toxic charges and content to the present content is and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ISUIATED NUCLEIC ACID Molecules encoding novel ovarian polypeptides, useful in the prevention, treatment and diagnosis of cancer (e.g. ovarian cancer), immune disorders, cardiovascular disorders and neurological diseases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human ovarian antigen HVVBK73,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABP41516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABP41516
                               shock syndrome), inflammatory conditions (e.g., mastitis, oophoritis and vaginitis), immune disorders (e.g., congenital and acquired province of immunedeficiencies, autoimmune oophoritis, systemic lupus erythematosus), blood-related disorders (e.g., anaemia), cardiovascular disorders,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2002-147878/19.
N-PSDB; ABQ54593.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            07-JUN-2001; 2001WO-US18569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               antiinflammatory;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            07-JUN-2000; 2000US-209467P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W0200200677-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HUMA-) HUMAN GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TFADFINNETLLGEDLVAWVTASFLHIPHAEDIPNTVTLGNRVGFLLRPYNFFDEDPSIF 687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFY 718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SADSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPGSVYFEKGQDAGLCSINPVACLPDLAACVPDLPPFSYHGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ID No 2648;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gynaecological;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2922pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               reproductive;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  immunomodulatory; neuroprotective; reproductive; chromosome 7q34-ter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NO: 2648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        syndrome;
```

```
ABB91435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and urinary system disorders. Ovarian antigen polypeptides and polynucleotides may also be used in screening for compounds which modulate ovarian antigen expression or activity. The polynucleotides may further be used for gene therapy, chromosome mapping, in the identification of individuals and in forensic analysis, and the polypeptides may be used as food additives or to prepare antibodies useful in disease diagnosis, drug targeting and phenotyping. The present sequence represents a human ovarian antigen of the invention.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at fire wipo.int/pub/published_pct_sequences.
The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compound aligning and comparing nucleic acid or amino acid se
                                                        Claim
                                                                                           Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                         07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                       Herbicidal;
                                                                                                                                                                                                                                                                                                                                                                                                Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                           31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABB91435;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                               Tietjen K, Weidler
                                                                                                                                                                                                                                   28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                 W0200210210-A2
                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABB91435 standard; Protein;
                                                                                                                                                                                                          (FARB )
                                                                                                                                                                                                                                                             28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEIS 364
                                                                                                                                                     2002-269010/31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VQEAVALYGGHTPAGMQTKYLDVGWGLGSVTHELAPGIDCPETATFLDTFHYYDADDPVH 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKT 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PSPIHVSGPRLVQPHGPRFRLEGNAVLYGGWSFAFRLRSSSGLQVLNVHFGGERIAYEVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SGAIEIRFYATGYISSAF 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IRDAFCVFEQNQGLPLRRHHSDLYS---HYFGGLAETVLVVRSMSTLLNYDYVWDTVFHP 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NGVMEAKMHATGYVHAXF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YPRALCLFEMPTGVPLRRHFNSNFKGGFNFYAGLKGQVLVLRTTSTVYNYDYIWDFIFYP
                                                        .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83;
                                                                                                                                                                                                          BAYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                        SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         248
                                                                                                                                                                                                                                                                                                                                                                     plant; agriculture;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₹,
                                                        ö
                                                        646;
                                                                                                                                                                                z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  213
                                                    261pp +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 457.5;
Pred. No. 2.7
                                                                                                                                                                                                                                                                                                                                                                        herbicide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                     Sequence Listing; English
                                                                                                                                                                                                                                                                                                                                                                                                SEQ
                                                                                                                                                                                                                                                                                                                                                                                                ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ນB 23;
າ.7e-37;
 compounds, comprising acid sequences from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
--
                                                                                                           sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
 plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲.
```

```
밁
                                                                    밁
                                                                                                   Ş
                                                                                                                                      В
                                                                                                                                                                        Š
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                Ş,
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                     δ.
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        useful as herbicides
694
                                 718
                                                                    638
                                                                                                       659
                                                                                                                                        578
                                                                                                                                                                           599
                                                                                                                                                                                                             518
                                                                                                                                                                                                                                            543
                                                                                                                                                                                                                                                                                 462
                                                                                                                                                                                                                                                                                                                  491
                                                                                                                                                                                                                                                                                                                                                   404
                                                                                                                                                                                                                                                                                                                                                                                        435
                                                                                                                                                                                                                                                                                                                                                                                                                        344
                                                                                                                                                                                                                                                                                                                                                                                                                                                             387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRAT-----WFGL 229
                                                                                                                                                                                                                                          DMVFVPM---AVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLAS-NHSNKWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DPLTVREINR-----VRTILSNHDPGFGSGSAT-----IHSMALDEPEK-SRVVQWKK 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDR 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LVLLILAVITIFALVCVLLVGRGGDGG------EPSQLPHCPSVSPSAQPWTHPG
GSAP--FFEKD 702
                                 YSADSIYFRGD 728
                                                                    QVWSD--RDRSIENKDIVLWYTLGFHHVPCQEDYPVMPTV--AASFELKPANFFESNPIL
                                                                                                     D-FSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPHTVTVGNGVGFFLRPYNFFDEDPSF
                                                                                                                                        NPAGYRIYPGGNAASLLDHDDPPQIRGAFTNNQIWVTPYNRSEQYAGGVLIYQSQGDDTL
                                                                                                                                                                         HPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTV
                                                                                                                                                                                                             SLVKVHLEKQRVPTGKSPRKSYLKVKKYIAKTEKDAQIKLSLYDPYEFHIVNPNRKSRVG
                                                                                                                                                                                                                                                                                                                ATG-----YISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAE 542
                                                                                                                                                                                                                                                                                                                                                   YAGDISWRHSEILFAN--ADIRESRPKVTLVARMATSVGNYDYIFDWEFQTDGLIRVTVA 461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HLVKWANWVFHVKADQRAGMII----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EVIKIIDKG-----PIPIPKASGTEYRFGVQNKPVHMDRINPISMEQPDGPSFRVEDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NVVLIPDNGTGGSWSLKSPVPPGPAPPLQF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQF----EAGLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QVPLKSLEFNRSI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GNKLLSRRAAVVAYWGGQTHEITVDLDSGRV-----VSDVINRTSGYPI-LTLNDVFAAS 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQE 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LFLLFFSFLLIFATYSWVF---GPDSGFLFGTRVRKTLGSNRQVH---VDHSLEKPHHPL 62
                                                                                                                                                                                                                                                                                 ASGMLMVKGTPYDNVDDLGDREDDAGPLISENVIGVVHDHFITFHLDMDIDGPMN----N
                                                                                                                                                                                                                                                                                                                                                                                     NQGLPLRRHHSDLYSHYFGGLAET----VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFY
                                                                                                                                                                                                                                                                                                                                                                                                                          EEGWYYKGYMDAGELGLGPTAMPLVPLNDCPRNSYYIDGVFASPDGKPIVQPNMICLFER
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ------GGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     712 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         --SEEEGRRVI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8.18;
21.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 330; DB 23;
Pred. No. 1.3e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----RVQCFTLQGTTNYFMRPLEGLYVTVDLDKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --SQATVRDSETGEPRSVMYKGFPSELFVPYMDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches 346;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----EARGVKFSDLACITPFAGWFG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---YPQGPRFSVQ-G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                         658
                                                                                                                                                                                                                                                                                                                                                                                       490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           197
                                                                                                                                        637
                                                                                                                                                                                                             577
                                                                                                                                                                                                                                                                                                                                                                                                                          403
                                                                                                                                                                                                                                                                                                                                                                                                                                                           434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  289
```

RESULT 5 ABB92504 ID ABB9

ABB92504

standard;

Protein;

687

⋛

31-MAY-2002

(first entry)

ABB92504;

```
Š
                                                                                                                                                                                                           В
                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                         Ş
                                                      δÃ
                                                                                      밁
                                                                                                                δÃ
                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                               밁
Š
                             В
                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Herbicidally
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Herbicidal; plant; agriculture; herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 5; SEQ ID NO 1715; 261pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tietjen K, Weidler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (FARB )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28-AUG-2001; 2001WO-EP09892.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-AUG-2001; 2001WO-EP09892.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200210210-A2
                                                                                                                                                                               178
                                                                                                                                                                                                             103
                                                                                                                                                                                                                                          127
   338
                              227
                                                                                                                                                  152
                                                          297
                                                                                       200
                                                                                                                                                                                                                                                                      50
                                                                                                                                                                                                                                                                                                  67
                                                                                                                                                                                                                                                                                                                                φ
                                                                                                                                                                                                                                                                                                                                                           LVLLILAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2002-269010/31
 SFGLGAFSGPRIFDVRFQGERLVYEISLQEALAI-YGGNSPAAM----
                                                                                                                                                                              DIDOMIFNRELPOASGLLHHCCFYKHRGRNLVTMTTAPRGLOSGDRATWFGLYYNISGAG
                                                                                                                                                                                                           AMSNGESHVLTVDLKSGRVVSDLVNPTFGYPILTMKDIIAV---SQVPY-----KSV
                                                                                                                                                                                                                                                                      EIKRVQTILSGH-DPGFGSGS-----TIIHAMALDEPDKQRVIRWKKGDRLPPRRAEIL 102
                                                                                                                                                                                                                                                                                                                               LLVLLLSLLFLFTTL------ASSSKTPRFKYSLEKPHHP-----LDPLTTP 49
                                                                                                                                                  EFNRSIEARGIP-FSGLICITPFAGWYGPD---
                                                                                                                                                                                                                                     IVFFGRQPQPNV---SELVVGPLPHPSY-----MRDVTVERHGGPLPYHRRPVLFQEYL 177
                                                                                                                                                                                                                                                                                                  ELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALA 126
                             -----PVPVPKSTGTEYRYGFLNETVYMDRVNPMSMEQPDGPSFQVEDGYLVKWANWKF
                                                          GGSWSLKSPVPPGPAPPLQF-------YPQGPRFSVQ-GSRVASSLWTF
                                                                                       FYMRPIEGLYLTVDMDKLE------------IIKIVDNG-
                                                                                                                     FFLHHV-GLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BAYER AG
                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    687
                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    active
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                         8.0%;
21.6%;
                                                                                                                                                                                                                                                                                                                                                                                          113;
                                                                                                                                                                                                                                                                                                                                                                                        Score 327; DB
Pred. No. 2.4e
13; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ID NO 1715
                                                                                                                                                 -----EEGRRVIKIQCFSKQDTVN 199
                                                                                                                                                                                                                                                                                                                                                                                        DB 23;
2.4e-23;
nes 314;
                                                                                                                                                                                                                                                                                                                                                                                                                     Length 687;
                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                           194;
 -TTRYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequences
                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                              66
                                                          337
                                                                                                                     296
                                                                                                                                                                               237
                                                                                                                                                                                                              151
                                                                                         226
                                                                                                                                                                                                                                                                                                                                                                                           31;
```

```
RESULT 6
ABB92082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
    XXXXE
The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant hucleic acid or amino acid sequences from non-plant organisms suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABB92082 standard;
                                                                                                                                        Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABB92082;
                                                                                                   Claim 5; SEQ
                                                                                                                                                                                                                              Tietjen K,
                                                                                                                                                                                                                                                                                     28-AUG-2001;
                                                                                                                                                                                                                                                                                                                28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                             07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                       WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                             Herbicidal; plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    335
                                                                                                                                                                                                                                                        (FARB ) BAYER AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DAGEFGLGPSSMPLVPLNDCPRNAYYIDGFFASPEGIPILQPNMICLFERYAGDTSWRHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HIKPDQRAGMII---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTAYENVEDLGEKEDDSGPLISENVIGVVHDHFISFHLDMDIDGSAN----NSFVKVHLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---YISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DGG-FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VPWSPEHQLQR----LQVTRKLLEMEEQAAFLVGSATPRYLYLAS-NHSNKWGHPRGYRIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EIL----LPGVDIRESRAKVTLVARMACSVGNYDYIFDWEFQMDGVIRVTVAASGMLMVK: 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SDLYSHYFGGL-----AETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATG----
                                                                                                                                                                                                   2002-269010/31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PVLGISPFFEKD 683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P----SFYSAD 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DTLQVWSD--RDRSIENKDIVLWYTLGFHHVPCQEDFPVMPTIAS--SFELKPVNFFESN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTVD-FSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTYGNGVGFFLRPYNFFDED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PGGNAASLLDHDDPPQMRGAFTNNQIWVTR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KQRLPPGESRRKSYLKVKKYVAKTEKDAQIKMSLYDPYEFHLVNPNRLSRLGNPAGYKLV 566
                                                                                                                                                                                                                              Weidler
                                                                                                   ID NO
                                                                                                                                                                                                                                                                                     2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                               agriculture;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Protein;
                                                                                                   1293;
                                                                                                                                                                                                                               3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---SQATVRDSKTGEARSVMYKGFASELFVPNMDPGEGWYSKAYM
                                                                                                   261pp +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             759
                                                                                                                                                                                                                                                                                                                                                                                                                                herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ
                                                                                                 Sequence Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---YNRSEQWAGGLLMYQSRGE
                                                                                                    English.
                                                                                                                                                            sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         655
```

E-value

plant

using

```
RESULT 7
ABB92910
ID ABB9
XX
AC ABB9
AC ABB9
AC ABB9
DT 31-M
XX
DE Herb
                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                   밁
                                                                                                                                                      Š
                                                                                                                                                                             밁
                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 말
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are useful as herbicides.
           Herbicidally
                                                                           ABB92910 standard; Protein;
                                  31-MAY-2002
                                                        ABB92910
                                                                                                                                                                                                                                                                                                                                                         423
                                                                                                                                                                                                                                                                                                                                                                                                     363
                                                                                                                                     708
                                                                                                                                                         699
                                                                                                                                                                                                                                                                     535
                                                                                                                                                                                                                                                                                                               475
                                                                                                                                                                                                                                                                                                                                   467
                                                                                                                                                                                                                                                                                                                                                                               413
                                                                                                                                                                                                                                                                                                                                                                                                                         355
                                                                                                                                                                                                                                                                                                                                                                                                                                               309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                         590
                                                                                                                                                                                                                                               580
                                                                                                                                                                                                                                                                                          526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     71
                                                                                                                                                                                                                                                                                                                                                       AHFTNFTGGVETIENCVCLHEEDHGI-----LWKHQDWRTGLAEVRRSRRLTVSFLC
                                                                                                                                                                                                                                                                                                                                                                     WHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSH--YFGGLAET----VLVVRSMS 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SDNCVFSVELQ-LPPKAAALAHLDRGSP-----PPAREALAIVFFGRQPQPNVSELVVG 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SVSPSAQPWTHPGQSQLFADLS-----REELTAVMRFLTQRLGPGLVDAAQARP 91
                                                                                                                                  EHIGFTLMPHGFFNCSPA
                                                                                                                                                       NGVGFFLRPYNFFDEDPS 716
                                                                                                                                                                                           EEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVG
                                                                                                                                                                                                                     DPLSARHWIVRNTRTVNRTGQLTGYKLVPGSNCLPLARPEAKFLRRAAFLKHNLWVTRYA 649
                                                                                                                                                                                                                                                                                      FKVDLDV----AGLENWVWAEDMVFVPMAVPWSPEHQLQR--LQVTRKLLEMEEQAAFLV
                                                                                                                                                                                                                                                                                                            TVANYEYGFYWHFYODGKIEAEVKLTGILSLGALQPGETRKYGTTIAPGLYAPVHQHFFI
                                                                                                                                                                                                                                                                                                                                  TLLNYDYVWDTVFHPSGAIEIRFYATGYIS-SAFLFGATGKYGNQVSEHTLGTVHTHSAH 525
                                                                                                                                                                                                                                                                                                                                                                                                  RGRRPVAHRLSFVEMVVPYGDPNEPHYRKNAFDAGEDGLGKNAHSLKKGCDCLGSIKYFD
                                                                                                                                                                                                                                                                                                                                                                                                                        QGER-LVYEISLQEALAIYGG-NSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVD 412
                                                                                                                                                                                                                                                                                                                                                                                                                                             -----VDRSDVKPLQIIQPEGPSFRVRGYFVEWQKWNFRIGFTPREGLVIHSVAYVDGS 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WSLKSPVPPGPAPPLQ-FYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPD-----NGTGGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----FIEAMKR------RGIEDMDLVMVDPWCVGYHSEADA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LHHCCFYKHRGRNLVTMTTAPRGLQSGDRA---TWFGLYYNISGAGFFLHHVGLELLVNH 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLPHPSYMRDVTVERHGG------PLPYHRRPVLFQEYLDIDQMIFNRELPQASGL 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DKQVVALADAYFFPPFQPSLLPRTKSGPVIPMKLPPRRARLVVY---NQKSNETSVWIVA 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SVMPRTET-KHPLDPLSAAEISVAVATVRAAGANPEVRDGMRF-----IEVASVEP 120
                                                                                                                                                                                                                                           GSATPRYLYLASNHS-NKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRK 638
                                                                                                                                                                                                                                                                 ARMDMSVDCKPAEAFNQV-----VEVNVRVDERGENNVHNNAFYAEEKLLKSEAVAMRDC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----LSEVHAVTRGGHHRGRVVSSQVIPDVQPPMDAAEYAECEAIV--KDFPP----
                                                                                                                                                                             PDEKFPGGEFPNQNPRAGEGLATWVKQNRSLEESDVVLWYVFGITHVPRLEDWP--VMPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -PSRRLAKPLIYCRT--DSDSPMENGYARPVEGIYVLVDMQNMVVIEFEDRESRGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            759 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
           active
                                 (first
           polypeptide
                                 entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98;
                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 302.5; DB 2
Pred. No. 8.5e-21;
8; Mismatches 327
           SEQ
                                                                            ₿
           IJ
           ö
           2121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                327;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels 147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                            534
                                                                                                                                                                                                                                                                                                                                                                                                   422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29;
                                                                                                                                                               Š
                                                                                                                                                                                      밁
                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                             XXEXTXXXXI
                                                                                                AAR94370
                                                                                                                                           밁
                   Α.
```

```
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are
  Strain
                                                                                                                                  AAR94370;
                                                                                                                                                                              AAR94370 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 5; SEQ ID NO 2121; 261pp +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2002-269010/31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tietjen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-AUG-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Herbicidal; plant; agriculture;
                                                                                        20-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           useful as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (FARB ) BAYER AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200210210-A2
                                                                                                                                                                                                                                                                                           244
                                                                                                                                                                                                                                                                                                                                     679
                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           457 ETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGK------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                         niger strain M-62 amine
                                                                                                                                                                                                                                                                                           TLGFHHIPCQEDFPIMPTVSS--SFDLKPVNFFERNPILKAAPNFEY
                                                                                                                                                                                                                                                                                                                                                                            PPQKRGAFTNNQIWVTPYNKSEQWASGLFTYQSHGDDTLAVWSD--RDRDIENKDIVVWY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KVTLVVRMVASVGNYDYIIDYEFQTDGVMRAKVGLSGML---MVKGTTYENKNQVKKDKE
                                                                                                                                                                                                                                                                                                                                                                                                                         SMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD-FSDFINNETIAGKDLVAWV 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GNEEELYGTILSENVIGVIHDHYVTFYLDLDVDGPDNSFVKVNLKRQETAPGESPRKSY- 126
                                                                                                                                                                                                                                                                                                                                   TAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RLOVTRKLLEMEEQAAFLVGSATP-RYLYLASNHSNKWGHPRGYRIOMLSFAGEPLPONS 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -MKAVRNIVKTEKDGQIKLSLYDPSEYHVINPGKTTRVGNPTGYKVVPRATAASLLDHDD 185
  M-62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  K, Weidler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2001WO-EP09892
  amine
                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ŗ,
  oxidase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.0%;
25.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           53;
                                              oxidase
                                                                                                                                                                              670
formation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 246.5; DB 23; Pred. No. 8.5e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                              ζ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence Listing;
hydrogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         133;
peroxide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                         288
                                                                                                                                                                                                                                                                                                                                     725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7;
```

```
δ
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                          Ş
                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                       밁
                                                                                                               δ
                                                                                                                                                 B
                            밁
                                                   δÃ
                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The present sequence is the A. niger strain M-62 amine oxidase (AO), which is used in the formation of hydrogen peroxide from butyl amine, or benzylamine by oxidative deamination. The AO gene the sequence of which was determined by sequencing a restriction enzyme map of an AO gene contg. cDNA, can be used for the recombinant prodn. of AO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           butyl amine; benzylamir recombinant production.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gene encoding amine oxidase - used in formation of hydrogen from butyl amine, or benzylamine by oxidative de:amination
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (TOKU ) TOKUYAMA SODA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19-MAR-1996
                                                                                                                                                                                  351
                                                                                                                                                                                                                                                                         209
                                                                                                                                                                                                                                                                                                      236
                                                                                                                                                                                                                                                                                                                                   154
                                                                                                                                                                                                                                                                                                                                                                  195
                                                                                                                                                                                                                                                                                                                                                                                              109
                                                                                                                                                                                                                                                                                                                                                                                                                            151
                                                          466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      108
                                                                                                                                                                                                                                                                                                                                                                                                                                                          49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                53 HPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1996-203152/21.
DB; AAT14174.
                                                                                                                                                                    DVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDCPYLAT 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HP-----IAILSEEETNIARNVILAQHPNTVIDFRE-----IYLSEPPKAQLLEF
                                                                                                                                                                                                                             TGGSWSLKSPVPPGPAPPLQFYPQGPRFSV-QGSRVASSLWTFSFGL----GAFSGPRIF
                                                                                                                                                                                                                                                                                                                                                                                                LTLSEFDTLVERCFASP------LFQKALADFD-----LPEGFEVVIEPYGGLDYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                        LALEHSGRLSPTSPRPPRLALCQYDVIGNDRIPSFEESVVDVGTRQRVQHRVVGKEHHAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AALAH---LDRGSPPPAREALA---IVFFGRQP-----QPNVSELVVGPLPHPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          amine; benzylamine; oxidative deamination;
                                                                                       YFDAVMTGADGSAKKMPNAICLHEQDNGIGWK-----HSNWRTGRAVVTRHRELVVQFI 398
                                                                                                                                                     ---YDGRSVLYRLSVSEMTVPYADPRPPFHRKQAFDFGDGGGGNMANNLSIGCDCLGVIK 344
                                                                                                                                                                                                                PGGTRKDLKPLN------VVQPEGPSFRITEESLVEWQKWRFRVAFNPRRGCYHSQTSW
                                                                                                                                                                                                                                                                                                      AGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNG
                                                                                                                                                                                                                                                                                                                                    EEKRRYFQGLCFATDKRKNNPDANFYSYPLPLIPVMDGAYPGDHSGRPSR-----HRCKG
                                                                                                                                                                                                                                                                                                                                                                -----LHHCCFYKHRGRN-------LVTMTTAPRGLQSGDRATWFGLYYNISG
                                                                                                                     YVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETV----LVVRSM 465
                                                                                                                                                                                                                                                                         EGLTEQTFKRDIIGHCKDSD------
                               ITLANYEYIFAYKFDQSGGITGRVACHGYLE-----RGQHRCWQGQRVRQRRQWRRVG
                                                          STLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY----GNQVSE----HTLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3; Pages 9-11; 12pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 22.:
68; Conservative
-TVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQ
                                                                                                                                                                                                                                                                                                                                                                                                              -DVTVER-HGGPLPYHERPYLFQEYL-DIDQMIFNRELPQA-----SGL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        670 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94JP-0211526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94JP-0211526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 214.5; DB 17;
Pred. No. 5.6e-12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                          ----YVPELL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9-12;
301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            670;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      peroxide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                153
                                                                                                                                                                                                                                                                                                                                                                                                                                                          108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     48
                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                              194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37
```

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         immunostimulant; thrombolytic; coagulant; vasotropic; antidiabetic; hypotensive; dermatological; immunosuppressive; antilnflammatory; antiinviral; antibacterial; antifungal; antirheumatic; antithyroid; antianaemic; gene therapy; cancer; proliferative disorder; hypertension, neurodegenerative disorder; osteoarthritis; graft vs host disease; cardiovascular disease; diabetes mellitus; hypothyroidism; SCID; AIDS; cholesterol ester storage; systemic lupus erythematosus; infection; severe combined immunodeficiency; malaria; autoimmune disorder; asthma; allergy; aplastic anaemia; nocturnal haemoglobinuria; burn; wound; ballergy; aplastic anaemia; nocturnal haemoglobinuria; burn; wound;
                                                                                                                                                                                                                                                                                                                                                  31-MAR-1999;
02-APR-1999;
05-APR-1999;
30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective;
anticonvulsant; osteopathic; antiarthritic; immunosuppressant; cardiant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAB42952 standard;
AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397, which represent the human ORFX open reading frames 1 to 3161. The ORFX sequences have activities such as: cytostatic; hepatotropic; vulnerary; antipsoriatic; antiparkinsonian; nocorpic; neuroprotective; osteopathic; anticonvulsant; antiarthritic; immunosuppressant; immunostimulant; cardiant; thrombolytic; coagulant; vasotropic;
                                                                                                                                                         Novel nucleic acids and peptides derived from open reading useful for treating e.g. cancers, proliferative disorders, neurodegenerative disorders and cardiovascular disease -
                                                                                                                                                                                                                                                                                                                                                                                                                                           31-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bone damage; cartilage damage; antiinflammatory disease; coagulation;
                                                                                                                                                                                                                                                                                                                (CURA-) CURAGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PEPPAHFLCAHRP---GYYGPNNSVQVEESHPVPMNAVTNPNGNFYKVNT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WERYQLAVTQRKEEEPSSSSVFN-QNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFLH
                                                                                                                                                                                                                               2000-602362/57.
DB; AAC77161.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NPRVEDWP--VMPVEIFQLMIRPADFFTANPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPHAEDIPHTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FAQHHVWVTKYRDGELYAGGRYTLQSQEEIEGV--SDAVKRGDSVVDTDVVVWSTFGITH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGFF - - DAAPELNRTVKMVNPHKKNPISQK - - - PVGYKFIPLATQRLLADPNSIQARRAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAFLVGSATP---RYLYLASNH----SNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORFX ORF2716 polypeptide sequence SEQ ID Nb:5432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          open reading frame; ORFX; detection;
                                                                                                                                                                                                                                                                                 RA,
                                                                                                                          Page 4615-4617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              contraceptive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                    2000US-0540763
                                                                                                                                                                                                                                                                                                                                                                                                                                           2000WO-US08621
                                                                                                                                                                                                                                                                                 Leach
                                                                                                                                                                                                                                                                                                                                                                      99US-0127636
99US-0127728
                                                                                                                                                                                                                                                                                                                                                                                                       99US-0127607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein;
                                                                                                                      5507pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₹
                                                                                                                          English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cytostatic; hepatotropic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -ETMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                503
```

```
RESULT 10
ABB92909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                              H
                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nucleic acids can be used to express ORFX proteins in gene therapy rectors. The proteins and nucleic acids may be used to treat cancers, proliferative disorders, neurodegenerative disorders, osteoarthritis, graft vs host disease, cardiovascular disease, diabetes mellitus, hypertension, hypothyroidism, cholesterol ester storage, systemic lupus erythematosus, severe combined immunodefictency (SCID), AIDS, viral, bacterial or fungal infection, malaria, autoimmune disorders, asthma, allergies, aplastic anaemia, burns, wounds, bone and cartilage damage, nocturnal haemoglobinuria, antinflammatory disease; to enhance coagulation; to inhibit thrombosis; and as a contraceptive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antibacterial; antiviral; antifungal; antirheumatic; antithyroid; and antianaemic. The sequences can be used for determining the presence of or predisposition to, or preventing or treating pathological conditions associated with an OREX-associated disorder. The
                07-FEB-2002
                                               WO200210210-A2
                                                                                 Arabidopsis thaliana
                                                                                                                  Herbicidal;
                                                                                                                                                 Herbicidally active polypeptide
                                                                                                                                                                                         31-MAY-2002
                                                                                                                                                                                                                             ABB92909
                                                                                                                                                                                                                                                            ABB92909 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            583
                                                                                                                                                                                                                                                                                                                                                  689 DRLNASYGMLGQSPPLHRSPD--FLLSY 714
                                                                                                                                                                                                                                                                                                                                                                                                                                                         327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       388 GAGGAPASATPTPALSPGRSLRPHLIPLLLRGAEAPLTDACQQEMCSKLRGAQGPLGP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30 GDGGEPSQLPHCPSVSP--SAQPWTHP----GQSQLFADLSREELTAVMRFLTQRLGPGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                               RYVDGGFGMGKYTTPLTRGVDCPYLATY 410
                                                                                                                                                                                                                                                                                                                                                                                                                   PSSPA-PVWRSSLG-----PPAPLD---RGENLYYEIGASEGSPYSGPTRSWSPFRSMPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGN----SP-AAMTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----GGGRDAPEAAAQSPCSVPSQVPTPGFFSPAPRECLPPFLGVPKPGLYPLGPP-SFQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNGTGGS-----QFYPQGPRFSVQ 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SELVVGPLPHPS - - - YMRDVTVERHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----AQVSAQLRAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SQQECGGTPPASQSPFHRSLSLEVGGEPLGTSGSGPPPNSLAHPGAWVPGPPPYLPR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPARE----ALAIVFFGRQPQPNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ------DMESPLPPPPLSLLRPGGAPPPPPKNPARLMALALAERAQQVAEQQ 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------QQSDGSLL------RSQRPMGTSRRGLRGP------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 863
                                                                                                                  plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Æ
                                                                                                                                                                                                                                                          Protein; 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 127; DB 21; Pred. No. 0.0061;
                                                                                                                                                     SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------GPLPYHRRPVL 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 863;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels 188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22;
```

```
Ω
                                                                                                                                                                                                                                                                                               δÔ
                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                밁
                                                                                            20
                                                                                                                                밁
                                                                                                                                                             Š
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             рb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The invention relates to identifying target proteins (ABB90790-ABB94016) for herbioidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plan with nucleic acid or amino acid sequences from non-plant organisms us suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding the are useful for identifying modulators. The identified modulators are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 5; SEQ ID NO 2120; 261pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organisms -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2002-269010/31.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tietjen K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (FARB )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-AUG-2001; 2001WO-EP09892
442
                                435
                                                               382
                                                                                             387
                                                                                                                                323
                                                                                                                                                                334
                                                                                                                                                                                                 269
                                                                                                                                                                                                                               293
                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                               234
                                                                                                                                                                                                                                                                                                                               200
                                                                                                                                                                                                                                                                                                                                                                 187
                                                                                                                                                                                                                                                                                                                                                                                                  151
                                                                                                                                                                                                                                                                                                                                                                                                                                  133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31 DGGEPSQLPHCPSVS--------PSAQPWTHPGQSQL----FADLSREELTAVM 72
YAGDIAWRH
                              NOGLPLRRH 443
                                                               AGEYGFGLQAMPLEPVAEPKNLFIGPLNDCPRNAVYMDGTFAAADGTPYVRENMICVFES
                                                                                               GG-FGMGKYTTPLTRGV-----
                                                                                                                                NWEFHLKPDPRAGL-IMSQVKIHDPDTQETREVMYKGFVSELFVPYMDPSEAWYFKTYMD
                                                                                                                                                             LWTFSF-----GLGAFSGPRIFDVRFQGER-LVYEISLQEALAIYGGNSPAAMTTRYVD
                                                                                                                                                                                               DTGQ-----SIPIPGSTNTDYRYSTLPNHDKTRPLNTISLEQPRGPSFVIEDNHLVKWA
                                                                                                                                                                                                                              DNGTGGSWSLKSPVPPGPAPPLQF-------YPQGPRFSVQGSRVAS-S
                                                                                                                                                                                                                                                                SGAGFFLHHV-GLELLVNHKALDPARWTIOKVFYQGRYYDSLAQLEAQFEAGLVNVVLIP
                                                                                                                                                                                                                                                                                                                               ELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFG------LYYNI 233
                                                                                                                                                                                                                                                                                                                                                                                                N-----SHLLIVDL---STSR---VDQADSPVPESGYPIVTSEEMDSAASAPFSNADFNR 199
                                                                                                                                                                                                                                                                                                                                                                                                                               QPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLD-----IDQMIFNR 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SILSSH-----ALFASRVPHLLNSVVLEEPDK-NLVRQWEKGDQLPPRKASVIARVGG 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGR 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DCTKSSSSPFCASRNFLFNKNTRPISKNIPKTKPKNHDHVSDTPNHPLDPLTVMEINKVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          as herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BAYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Weidler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           460 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.1%;
20.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            49;
                                                                                             -----DCPYLATYVDWHFLLESQAPKTIRDAFCVFEQ 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 125.5; DE Pred. No. 0.003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           plant
                                                                                                                                381
                                                                                                                                                                386
                                                                                                                                                                                                                              333
                                                                                                                                                                                                                                                              268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            them
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         using
```

AAB07564 ID AAB

AAB07564 standard; Protein;

2675

ξ

RESULT 11

```
Š
                                                                                                                                                               밁
                                                                                                                                                                                           ş
                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                      Ş
                                                                       Ş
                                                                                                      밁
            Š
                                            밁
                                                                                                                                                                                                                                                                                                Query Match
Best Local 9
                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                    AABO7556-78 represent proteins encoded by open reading frames (ORFs) 8 to 30 of the BLM (Bleomycin) gene cluster. The proteins encoded by the gene cluster are useful for producing peptides and/or polyketide metabolites, especially bleomycin or bleomycin analogues. They are also useful for chemically modifying biological molecules to produce branched methyl groups, and for coupling amino acids and fatty acids. They may be reacted with an apo-carrier protein and coenzyme A to produce a holo-carrier protein. The BLM gene cluster or catalytic domains can be used individually or collectively to produce thiazolidine, thiazoline, bithiazoline and bithiazoline-containing microbial metabolites. The BLM gene cluster may also be used to produce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BLM gene cluster; bleomycin gene cluster; polyketide metabolite; bleomycin; bleomycin analogue; holo-carrier protein; thiazolidine; thiazoline; microbial metabolite; sugar.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces verticillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200040704-A1
                                                                                                                                                                                                                            1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-JAN-1999;
05-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-JAN-2000; 2000WO-US00445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAB07564;
                                           1484
                                                                                                      1441
                                                                                                                                                                 1388
                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; Page 97-137; 162pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New bleomycin gene cluster components useful for peptide and/or polyketide metabolites, especially bleomycin, production and for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (REGC )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    05-JAN-2000;
                                                                                                                                                                                              105
               273
                                                                                                                                                                                                                                                      48 AQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQAR---PSDNCVFSVELQLP 104
                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000-465974/40.
                                                                                                                                                                                  PKAA--ALAHLDR---GSPPPAREALAIVFFG-RQPQPNVSELVVGPLPHPSYMRDVTVE
GGGRRYRTGDL-----VRQRADGALVFRGRTDDQVKIGGIRVEP-------GEVAE 1527
                                                                                                       VLDGRLRPLP---RPVPGELYL-------GGACLAH-GYHHDPALTAARFLPAP 1483
                                                                                                                          RHGG---PLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAP
                                                                                                                                                               AAAVNRAAGLLDARLYNLYGPTEAAVDVTAWPCRPPEP-----GPVPIGLPIANTTTE
                                                                                                                                                                                                                            ARPGTHRDPARLVRRIAREAVTTV-HFVPSMLTPFLTELARGTTRLPALRRVVCSGEELP 1387
                                                                       RG---LOSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIOKVFYQGRYYD 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      UNIV CALIFORNIA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         encoded by the bleomycin (BLM) gene cluster ORF30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Du L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  modifying biological molecules
                                                                                                                                                                                                                                                                                                                                                2675
                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0477962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0115435
99US-0118848
                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sanchez
                                                                                                                                                                                                                                                                                                  2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ç
                                                                                                                                                                                                                                                                                       107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chen
                                                                                                                                                                                                                                                                                  Score 115; DB 21;
Pred. No. 0.65;
7; Mismatches 321;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ĭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Edwards
                                                                                                                                                                                                                                                                                       321;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뒫
                                                                                                                                                                                                                                                                                                                 Length 2675
                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                       310;
                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                 1440
                                                                                                                                                                                              158
                                                                                                                                     215
                                                                                                                                                                                                                                                                                       42;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                  RESULT 12
AAR32999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                밁
1528 ALRAL----PGVADAAVVPHDGRLAAYAVADPVGPAPAADALRDALRRRLPGHLVPAAL
                                                                                  Key
Peptide
Peptide
Peptide
Peptide
Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1972
                                                                                                                                                                                                     \mathtt{CK}; epitope; tumour; diagnostic; antibodies; distribution; liver; cranial nerve disease.
                                                       JP05015367-A
                                                                                                                                                                           Rattus rattus
                                                                                                                                                                                                                                                  Rat choline kinase
                                                                                                                                                                                                                                                                                14-JUN-1993
                                                                                                                                                                                                                                                                                                            AAR32999;
                                                                                                                                                                                                                                                                                                                                         AAR32999 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QRLQVT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALARHADERADRRPARQETPPGPFALCPEAAGVPGLEDAYPMSMAQRAVLFHRDHNPGYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TVLTELLRDYWSALRGAPLSLPAPAASYREFVALERAAQHDPAHREFWRTELAGARPHPL 1911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EDMVFV------PMAVP------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGYISSAFLFG-----ATGKYGNQVSEHTLGTVHTH---SAHFKVDLDVAGLENWVWA 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HYFGGLA-----ETVLVVRSMSTLLN-YDYV---WDTVFHPSGA-----IEIRFY 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YLATYVDWH-------FLL--ESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TLLDRLPLTPAGKLDRRALPHPSAPP----PDGGRPPTTGTERLVARVW------
                                                                                                                                                                                                                                                                                                                                                                                                                                           QAAACAPDLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRRPVPPPGPDGIRQHRHVVPVEDTVAKGLSALAGELGVGLKHVLLGVHLRVVRALSGDP 1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----VESSDPAGFDAWLHAERKRPLDVGTGPLARFTAHDAGAAGFRLTVSSFALDGWCVA 1851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VYVTSVAVSTPLDRTRLAAAVDRLLDRHAYLRSSFDLVSHPEPTQLVWTHLPTPLEV---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----AERLGREVVGVDRDFFSLGGDSVRALGVTAALRAAGLPVTVTDLLRLPTVA 1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAVTORKEEEPSSSSVFNONDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDI 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DVITAVETHGRLERHDGDRVLGVFNNILPLRQRVDGGSWADLARAAHAAEARTGEYRRYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIFDVRFQGERLVYE-ISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCP 405
                                                                                                                                                                                                                                                                                                                                                                                                                RAAADAPHRP 2132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLTAHFNVDATDGGGLRLLLESDPREFPDEQVAEFAA---YYRR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PNT----VTVGNGVGFFLR--PYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LAQAQR---DHGAAGLED-----TLEVETHEHLYRALADLDGMA---VSDLRAPDQTYV
                                                                                                                                                                                                                                                                               (first
                                                                                    Location/Qualifiers
139.225
278.327
328.360
398.412
                                                                                                                                                                                                                                                                                                                                                                                                                                             753
                                                                                                                                                                                                                                                                                                                                           Protein; 435
                                                                                                                                                                                                                                                                                entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -RKLLEMEEQAA-----SATP 584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----APPLQFYPQGPRFSVQGS-RVASSLWTFSFGLGAFSG
                                                                                                                                                                                                                                                                                                                                           $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRGYRIQMLSFAGEPLPQNSSMARGFSWERYQ 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----WSPE-----HQL 559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2079
```

17-SEP-1991; 26-JAN-1993.

91JP-0262516

```
RESULT 13
ABB92424
ID ABB92
XX
AC ABB92
XX
DT 31-MP
XX
DE Herbi
XX
OS Arab:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The choline kinase (CK) gene may be obtd. from rat brain, human brain, human liver, chicken liver, egg, soy bean, etc. The rat CK gene is shown, and can be isolated by PCR using oligonucleotides corresp. to partial CK sequences as primers. The oligonucleotides or the amplified DNA fragments, can then be used as probes to detect CK coding sequences. Rat CK may be purified by MMA-agarose affinity chromatography. A large amt. of CK may be produced and antibodies against CK may be obtd. for use in detecting the distribution of CK in tissues or cells, and the diagnosis of cranial nerve disease, liver disease and tumours.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rat choline kinase having specified DNA sequence - diagnosing cranial nerve diseases, liver diseases,
               Arabidopsis
                                           Herbicidal;
                                                                     Herbicidally active polypeptide
                                                                                                        31-MAY-2002
                                                                                                                                                              ABB92424 standard; Protein; 652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-SEP-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (MITK ) MITSUI TOATSU CHEM INC
                                                                                                                                                                                                                                            327
                                                                                                                                                                                                                                                                                                                                                                                             498
                                                                                                                                                                                                                                                                                                                                                                                                                         189
                                                                                                                                                                                                                                                                                                                                                                                                                                                    440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        328
                                                                                                                                                                                                                                                                                                    267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              268 GRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQG 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          83 TRRRAYLWCKEFLPGAWRGLREDQFHISVIRGGLRNMLFQCSLPDSIASV-GDEPRKVLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \omega_{\omega}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
les 79; Conserv
                                                                                                                                                                                                                                      EWMYDYTY
                                                                                                                                                                                                                                                                                                                                                                                                                                                   LRRHHSD---LYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1993-070176/09
                                                                                                                                                                                                                                                                      KWGHPRGY
                                                                                                                                                                                                                                                                                                                                QLQRLQVTRK----
                                                                                                                                                                                                                                                                                                                                                            --LFGTMEKYLNQVLR------LKFSREARVQQLHK-----FLSYNLPLELEN
                                                                                                                                                                                                                                                                                                                                                                                         AFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEH
                                                                                                                                                                                                                                                                                                                                                                                                                         SRRLDTEELCLPDISAEIAEKMATFHGMKMPFNKEPKW----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RL-----YGAILKMGAEAMVLESVMFAILAERSLGPK----LYGIFPQGRLEQFIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQ----NQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SRVASSLWTFSFGLGAFSGPR-----IFDVRFQGERLVYEISLQEALAIYGGNSPAAMTT 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GQQRDAAGELESKQLGGRSQPLALPPPPPPP----PLPLPPPPSPPLADEQPAPR-----
                                                                                                                                                                                                                                                                                                 LRSLLQYTRSPVVFCHNDCQEGNILLLEGQENSEKQKLMLIDFEYSSYNYRGFDIGNHFC 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Page 21; 26pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        435 AA;
                  thaliana
                                             plant; agriculture;
                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                     603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90JP-0242528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 109; DB 14; Length 435; Pred. No. 0.13;
                                                                                                                                                                                                                                                                                                                             -LLE----MEEQAAFLVGSATPRYLYLA---SNHSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                             herbicide
                                                                         SEQ ID
                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                    497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          141
                                                                                                                                                                                                                                                                                                                              595
                                                                                                                                                                                                                                                                                                                                                            266
                                                                                                                                                                                                                                                                                                                                                                                        557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82
                                                                                                                                                                                                                                                                                                                                                                                                                       226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14;
```

```
QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                             Qy
                                                                                                                                                                                               밁
                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are fully active that the polypeptides or nucleic acids encoding them are fully active that the polypeptides or nucleic acids encoding them are fully active to the polypeptides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 5; SEQ ID NO 1635; 261pp + Sequence Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   useful as herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tietjen K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (FARB ) BAYER AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-AUG-2001; 2001WO-EP09892
                                                               455
                                                                                                392
                                                                                                                               395
                                                                                                                                                              344
                                                                                                                                                                                               359
                                                                                                                                                                                                                                294
                                                                                                                                                                                                                                                                 319
                                                                                                                                                                                                                                                                                                239
                                                                                                                                                                                                                                                                                                                                 271
                                                                                                                                                                                                                                                                                                                                                                                                   226
                                                                                                                                                                                                                                                                                                                                                                                                                                   131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    204
                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11 ILAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTA
KMGNEYDREEMARMVACAAACVRHSARRRPRMSQIVRALEGNVSLSDLNEGMRPGHSNVY
                                                                                               GKYTTP----LTRGVDCPYLAT--
                                                                                                                               DCNPKIIHRDIKASNILIDFKFEAKVADFGLAKIASDTNTHVSTRVMGTFGYLAPEYAAS
                                                                                                                                                             FSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVD----GGFG------M
                                                                                                                                                                                                                                                               REFQAEVEIISRVHHR-----
                                                                                                                                                                                                                                                                                                                                 EELSRATNGFSEANLLGQGGFGYVHKGILPSGKEVAVKQLKAG--
                                                                                                                                                                                                                                                                                                                                                                  RELPOA----
                                                                                                                                                                                                                                                                                                                                                                                                                                  GRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQE----YLDIDQMIFN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFF 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ILVILTLICLLCKKKRRRRHDDEAAYYVPPPPPSGPKA-GGPYGGQQQYWQQQN-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2002-269010/31
                               ----HFLLESQAPKTIRDAFCV--
                                                              GKLTEKSDVFSFGVVLLELITGRRPVDANNVYVDDSLVDWARPLLNRASEEGDFEGLADS
                                                                                                                                                                                               NNLEFHLHGKGRPTMEWSTRLKIALGSAKGLSY------
                                                                                                                                                                                                                              N-----GTGG---SWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGA 343
                                                                                                                                                                                                                                                                                              FLHHVGLELL--VNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVL---IPD
                                                                                                                                                                                                                                                                                                                                                                                                   -RKPPP-----PPPPPAFMSS-----SGGSDYSDLPVLPPPSPGLVLGFSKSTFTY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Weidler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    652 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                -SGLLHHCCF-YKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGF 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    --ASRPSDNHVVT---SLPPPKPP----SPP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 108; DB 23;
Pred. No. 0.32;
6; Mismatches 190;
                                                                                                                                                                                                                                                                 ------HLVSLIGYCMAGVQRLLVYEFVPN
                                ----FEQNQGLP----LRRHHSDLY
                                                                                                -YVDW---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240;
                                                                                                                                                                                                                                                                                                                               SGQGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequences
                                                                                                                                                                                               HT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                               448
                                                               514
                                                                                                                               454
                                                                                                                                                              391
                                                                                                                                                                                              394
                                                                                                                                                                                                                                                                 358
                                                                                                                                                                                                                                                                                              293
                                                                                                                                                                                                                                                                                                                               318
                                                                                                                                                                                                                                                                                                                                                                                                   270
                                                                                                                                                                                                                                                                                                                                                                                                                                   185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70
574
                                                                                               413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 using
```

```
ABGILT 14
ABGILS 3
ID ABGILS
XX ABGILS
AC ABGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                               CC polypeptide (II) sequences. (I) is useful as hybridisation probes, CC polymerase chain reaction (PCR) primers, ollgomers, and for chromosome CC and gene mapping, and in recombinant production of (II). The CC quantitating expressed genes. (I) is useful in gene therapy techniques (I) (II) is useful for generating antibodies against it, detecting or CC quantitating a polypeptide in tissue, as molecular weight markers and as CC afood supplement. (II) and its binding partners are useful in medical CC imaging of sites expressing (II). (I) and (II) are useful for treating CC disorders involving aberrant protein expression or biological activity. CC The polypeptide and polypunceotide sequences have applications in CC diagnostics, forensics, gene mapping, identification of mutations (C and to produce other types of data and products dependent on DNA and CC amino acid sequences. ABG00010-ABG30377 represent novel human and CC diagnostic amino acid sequences of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human; chromosome mapping; gene mapping; gene therapy; forensic;
food supplement; medical imaging; diagnostic; genetic disorder.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABG13153 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess biodiversity -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Novel human diagnostic protein #13144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABG13153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Drmanac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31-MAR-2000; 2000US-0540217.
23-AUG-2000; 2000US-0649167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-MAR-2001; 2001WO-US08631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200175067-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 20;
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     449
                                                                                                   Note: The sequence data for this patent did not appear in the printed specification, but was obtained in electronic format directly from WIPO
                                                                 ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NPTSDYGL 620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NOVSEHTL 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001-639362/73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SSYGG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID No 43512; 103pp; English.
   446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Liu C,
   Æ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---STDY--DTSQYNDDMIKFRKMALGTQE----YGTTGEYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         508
```

Query Match Best Local Similarity

2.6%;

Score Pred.

106.5; DB No. 0.24;

22;

Length 446

```
RESULT 15
AAE23407
ID AAE23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   50
                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                     /note= "Wild-type Ala substituted with Gly" Misc-difference 71
                                                                                                                                                                                                                                                                                                                                                                   Amino acid oxidase; insect infestation; gene therapy; boll weevil; corn rootworm; CRW; insecticide; wireworm; WW; Colorado potato bee' CPB; lysine oxidase; tedanalactam synthase; enzyme; E.C. 1.4.3.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAE23407 standard; Protein; 617
                                                                                                                                                          Misc-difference 75
                                                                                                                                                                                                                                                                             Misc-difference 70
                                                                                                                                                                                                                                                                                                                Key
                                                                                                                                                                                                                                                                                                                                     Unidentified
                                                                                                                                                                                                                                                                                                                                                          mutein;
                                                                                                                                                                                                                                                                                                                                                                                                               Lysine oxidase proenzyme mut3
                                                                                                                                                                                                                                                                                                                                                                                                                                      27-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAE23407;
                                                                                                                          Misc-difference
                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                               Misc-difference
                                                                                                                                                                                                                                     Misc-difference
                                                                                                                                                                                                                                                                                                   Region
                         Misc-difference
                                                          Misc-difference
                                                                                          Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      435 LAWQR 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                404 NNKVYE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         455 LAET---VLVVRSMSTLLNYDYVWDTVFHPSGAIEIR-FYATGYISSAF-----LFGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     403 DCPY--LATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL-----YSHYFGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            211 LKAEGERAVYQIMQLQKLVNMFGGD----LTRRYGQKVHKLTLHGGFSCPNRDGTIGRG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  352 VRFQGERLVYEI-SLQEALAIYGGNSPAAMTTRY----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    565 TRKLLEMEEQAAFLYGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FSWER 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PFYGRQAPTADVAKIEAPLLLHFAELDTRINEGW-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YTSTFAEVQVLRSM-----YQQAVEHTTGKVGITGFCYGGGVSNAAAVAYPELACAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTFCNVASFAD----EAQQHRSIAEQLA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                  /note=
72
                                                                                          /note=
                            /note-
79
                                                                                                                            /note-
76
                                                                                                                                                                                                                                                                                                              Location/Qualifiers
/label= Unknown
/note= "Wild-type Glu substituted with
                                                                                                                                                                                                                                                                                         note- "Protease sensitive region
                                                                                                                                                                   /note-
                                                                                                                                                                                                    note- "Wild-type"
                                                                                                                                                                                                                         note-
                                                                                                 Tabel- Unknown
'note- "Wild-type
                                                                                                                                                                                 ′label-
                                                'label- Unknown
                                                                     note-
                                                                   label- Unknown
note- "Wild-type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----AYIYPGVNH---
                                                                                                                                  Unknown"wild-type
                                                                                                                                                                                                                                             "Wild-type
                                   "Wild-type Ala
                                                                                                                                                                    "Wild-type
                                                                                                                                                                                                                        "Wild-type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                     Arg
                                                                                                     Pro
                                                                                                                                     Ala
                                                                                                                                                                                                    Lys
                                                                                                                                                                                                                          Leu
                                                                                                                                                                                                                                               Leu
                                                                                                                                                                     Glu substituted with Xaa"
                                                                                                                                                                                                    substituted with Gly"
                                                                                                                                                                                                                          substituted with Gly"
                                                                                                                                                                                                                                                substituted with Gly"
                                    substituted
                                                                     substituted with
                                                                                                     substituted with Xaa"
                                                                                                                                      substituted with Xaa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----VDGGFGMGKYTTPLTRGV 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----GFHNDSTPRYDKSAAD 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -HQANLVNRAKRYLGYFQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                       with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PAYE-AALKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         103;
                                                                                                                                                                                                                                                                                                                                                                     o beetle;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16;
```

Job time : 70.4203 secs

```
8
                                                                                                                                                      밁
                                                                                                                                                                                       õ
                                                                                                                                                                                                                              ₿
                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 2.6
Best Local Similarity 22.8
Matches 79; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequences encoding these enzymes are used in gene therapy. The composition is used to control insect infestation of plants. It is used to control coleopteran species Diabrotica, Anthonomus, Melanotus, or Leptinotarsa. It is especially used to control boll weevil (BWV), corn rootworm (CRW), wireworm (WW) or Colorado potato beetle (CPB).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Composition for controlling coleopteran insect infestation of plants, such as Diabrotica, Melanotus, Leptinotarsa, or Anthonomus infestatic comprises a lysine oxidase enzyme and a tedanalactam synthase enzyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The composition can also be used to transform plants that can express the enzymes of the composition. The present sequence is a lysine oxidase (E.C. 1.4.3.2) proenzyme mutant used in the exemplification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to composition and methods for controlling coleopteran insect infestation of plants, by co-expressing an amino acid oxidase and a second enzyme that provides insecticidal activity when present in a mixture with the amino acid oxidase. Nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2002-424731/45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Isaac BG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-APR-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example 13; Column 89-94; 77pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (MONS ) MONSANTO TECHNOLOGY LLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US6372211-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Misc-difference
274 -----TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS
                                                                         228 E---DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF----
                                                                                                          276 QLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLW 335
                                                                                                                                             176 TP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEKLA
                                                                                                                                                                                  224 ATWFGLYYNISGAGFFLHHVGLELLVN------HKALDPARWTIQKVFYQGRYYDSLA 275
                                                                                                                                                                                                                      126 LYTHHFTDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDGEN 175
                                                                                                                                                                                                                                                           164 LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR 223
                                                                                                                                                                                                                                                                                                                                   110 LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHGGP 163
                                                                                                                                                                                                                                                                                                                                                                                             63 LSREELTAVMRFLTQRLG--PGLVDAAQAR-------PSDNCVFSVELQLPPKAAA 109
                                                                                                                                                                                                                                                                                              74 XXXXXXGGGPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTGGR 125
                                                                                                                                                                                                                                                                                                                                                                       18 LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSIK----PGGGG 73
                                    TFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Greenplate JT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              617 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97US-044504P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98US-0063733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note- "Wild-type Glu substituted with Gly" 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note- "Wild-type Glu substituted with Gly"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.6%; Score 106; DB 23; 22.8%; Pred. No. 0.47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Wild-type Leu substituted with Gly"
                                                                                                                                                                                                                                                                                                                                                                                                                                                     40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Purcell JP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Romano CP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                         -FAIQWMETQN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                   66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                infestation,
                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                   18;
```

Search completed: May 20, 2003, 11:33:54 밁 Ş δÃ

1, Appli
1, Appli
1, Appli
1, Appli
2, Appli
2, Appli
2, Appli
3, Appli
3, Appli
56, Appli
1, Appli
2, Appli
38, Appli
38, Appli
38, Appli
38, Appli
4, Appli
56, Appli
56, Appli
56, Appli
56, Appli
57, Appli
58, Appli
59, Appli

```
Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멂
                                                                                                                                                                            100.5
100
95.5
94.5
93.5
93.5
93.5
93.5
                                                                                                                                                                                                                                                                                                                                                                                                                 Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq length:
seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                               Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-081-408-2
4095
1 MNQKTILVLLILAVITIFAL......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Мау 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Issued_Patents_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Copyright
                                 /cgn2_6/ptodata/2/1aa/5A_COMB.pep:*
/cgn2_6/ptodata/2/1aa/5B_COMB.pep:*
/cgn2_6/ptodata/2/1aa/6A_COMB.pep:*
/cgn2_6/ptodata/2/1aa/6B_COMB.pep:*
/cgn2_6/ptodata/2/1aa/B_COMB.pep:*
/cgn2_6/ptodata/2/1aa/BCTUS_COMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                 Length
 20000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2003, 11:30:54; Search time 24.5906 Seconds (without alignments) 912.939 Million cell upda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.5 (c) 1993 - 2003 Compugen
US-09-063-733A-58
US-09-158-767-19
US-09-158-767-20
US-09-063-733A-46
US-08-506-296B-14
US-09-063-733A-57
US-09-063-733A-57
US-09-136-574A-44
US-08-471-119A-2
PCT-US94-03437-8
US-08-647-071A-2
US-08-445-463B-8
US-08-445-463B-8
US-08-445-463B-8
US-08-646-68-19
US-08-68-19
US-08-68-19
US-08-954-181-2
US-09-579-181-2
US-08-078-311-12
US-08-078-311-12
US-08-078-311-7
US-08-078-311-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . QAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                               Description
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                     Sequence
Sequence
                                                                                                                                                           Sequence
Sequence
                                                                                                                                                                                       Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                 Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                          Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                  Sequence
                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                              Sequence
                         58, Appl
52, Appl
53, Appl
53, Appl
54, Appl
55, Appl
56, Appl
57, Appl
57,
                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOTTWARE: PatentIn Release #1.0, Version #1.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/063,733A
FILING DATE: 21-APR-198
CLASSIFICATION: 435
ATTORNEY/ARENT INFORMATION:
NAME: Patterson, Melinda L.
REGISTRATION NUMBER: 33.062
REFERENCE/DOKET NUMBER: MOBT:022
TELECOMMUNICATION INFORMATION:
TELEPHONE: 713-787-1440
INFORMATION FOR SED ID NO: 58:
SEQUENCE CHARACTERISTICS:
LENGTH: 617 amino acids
TYPE: amino acids
TYPE: amino acid
STRANDEDNESS: not relevant
TOPOLOGY: linear
US-09-063-733A-58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 1
US-09-063-733A-58
                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 58
Patent No.
                                                      Query Match
Best Local S
Matches 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Isaac, Barbara G.
APPLICANT: Greenplate, John T.
APPLICANT: Purcell, John P.
APPLICANT: Romano, Charles P.
TITLE OF INVENTION: METHODS AND
TITLE OF INVENTION: INSECTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES: 58
CORRESPONDENCE ADDRESS:
ADDRESSEE: Arnold White
STREET: PO Box 4433
CITY: Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: USA
ZIP: 77210-4433
               63 LSREELTAVMRFLTQRLG--PGLVDAAQAR------PSDNCVFSVELQLPPKAAA 109
18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSIK----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                     l Similarity
79; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3, Application US/09063733A 6372211
                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  \alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                635
635
635
1436
1436
1436
1436
630
630
630
637
747
5123
                                                                    2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    John T.
>hn P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-184-327A-4
US-08-678-311-1
US-08-460-402-1
PCT-US95-00670-4
US-08-652-971-2
US-08-991-258A-2
US-08-991-953A-2
US-08-991-953A-2
US-09-063-733A-56
US-09-063-733A-56
US-08-96-71
US-08-96-71
US-08-973-273-26
                                                        40;
                                                      Score 106; DB
Pred. No. 0.07:
40; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AND COMPOSITIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALIGNMENTS
                                                                    DB 4
                                                                                  4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FOR CONTROLLING
                                                                                Length 617;
                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
```

86;

Gaps

18;

PGGGG 73

Minimum Maximum

Sequence:

	Qy 405 PYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHY 451
	QY 373 GGNSPAAMTTRYVDGGFGMGKYTTPLTR
	324 S 210 S
	Qy 267 QGRYYDSLAQLEAQEEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRF 323
	QY 226WFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFY 266
	Qy 170 PVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRAT 225
22;	Query Match . 2.5%; Score 102.5; DB 4; Length 541; Best Local Similarity 19.6%; Pred. No. 0.14; Matches 109; Conservative 60; Mismatches 205; Indels 183; Gaps
	; ORGANISM: Artificial Sequence ; FEATURE: ; OTHER INFORMATION: Albered sequences US-09-158-767-19
	SOFTWARE: FastSEQ.for SEQ ID NO 19 LENGTH: 541 TYPE: PRT
	CURRENT APPLICATION NUMBER: US/09/158,767A CURRENT FILING DATE: 1998-09-23 EARLIER APPLICATION NUMBER: FR 97-12094 EARLIER FILING DATE: 1997-09-24 NUMBER OF SEQ ID NOS: 20
	APPLICANT: SCHALK, MICHEL APPLICANT: WEFCK-REICHHART, DANIELE APPLICANT: WEFCK-REICHHART, DANIELE APPLICANT: WEFCK-REICHHART, DANIELE APPLICANT IN YEFILE REFERENCE: A32000
	Sequence 19, Patent No. 6 GENERAL INFO APPLICANT: APPLICANT:
	RESULT 2
	Qy 336 TFSFGLGAFSGPRIFDVRFQGERLYYEISLQEALAIYGGNS 376
	Db 228 EDFDKGFDELMLVDDMTTREYLKRGGPKGEAPKYDFFAIQMMETQN 273
	176 TPQLYNNHFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAFGYYKEKLA
	224 ATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLA 27
٠	QY 164 LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR 223
	QY 110 LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGP 163

```
RESULT 3
US-09-158-767-20
; Sequence 20, Application US/09158767A
; Patent No. 6180363
; Patent No. 6180363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                              õ
                                                                                                 밁
                                                                                                                                               Ş
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; OTHER INFORMATION: Altered sequences US-09-158-767-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 20
LENGTH: 541
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 2.5%; Score 102.5; DB 4; Length 541; Best Local Similarity 19.6%; Pred. No. 0.14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 109; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Batard, Yannick
APPLICANT: Durst, Francis
APPLICANT: Schalk, Michel
APPLICANT: Schalk, Michel
APPLICANT: Werck-Reichhart, Daniele
APPLICANT: Werck-Reichhart, Daniele
TITLE OF INVENTION: EXPRESSION IN YEAST AND OBTAINED TRANSFORMED YEAST
TITLE OF INVENTION: EXPRESSION IN YEAST AND OBTAINED TRANSFORMED YEAST
FILE REFERENCE: A32000
CURRENT APPLICATION NUMBER: US/09/158,767A
CURRENT FILING DATE: 1998-09-23
EARLIER APPLICATION NUMBER: FR 97-12094
ERRLIER FILING DATE: 1997-09-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             440 TKFEQHDSYKFVAFNAGPRVCL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      567 KLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFS 626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421 -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           507 YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTR 566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      370 KAALSETLRLYPSVPEDSKHVVADDYLPDGTFVPAGSSVTYSIYSAGRMKG----- 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       452 FGGLAETYLVVRSM----STLLNYDYVWDTVFHPSG-AIEIRFYATGYISSAFLFGATGK 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           312 SSVA--LSWFFWLVSTHPAVERKIVRELCSVLAASRGAHDPALWLAEPETFEELDRLVYL 369
                                                                                                                                                        373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      482 -- RLTVAPGHRVEQKMS 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       627 WERYQLAVTORKEEEPS 643
312 SSVA--LSWFFWLVSTHPAVERKIVRELCSVLAASRGAHDPALWLAEPFTFEELDRLVYL 369
                                                                                                                                                                                                         210
                                                                                                                                                                                                                                                       324 SVQGSRVASSLWTFSF------GLGAFSGPRIFDVRFQGERLVYEISLQEALAIY 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    170 PVLFQEYLDIDQMIFNRELPQASGLLHHCCF----YKHRGRNLVTMTTAPRGLQSGDRAT 225
                                                405 PYLATYVDWHFLLESQAP----KTIRDAFCVFEQNQGL-----PLRRHHSDLYSHY 451
                                                                                                    252 DQYLAAVIKKRKLELAAGNGKCDTAATHDDLLSRFMRKGSYSDESLQHVALNFILAGRDT 311
                                                                                                                                                                                                                                                                                                             156 HGRLLPILADAAKGKAQVDLQDLLLRLTFDNICGLAFG-----KDPETLAQGLPENEFA 209
                                                                                                                                                                                                                                                                                                                                                                 267 QGRYYDSLAQL---EAQFEAGLYNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRF 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  226 -----WFGLYYNISGAGFF------LHHVGLELLVNHKALDPARWTIQKVFY 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40 PGLVQHAEDMHEWIAG-NLRRAGGTYQTCIFAVPGVARRG-GLVTVTCDPRNLEHVLKAR 97
                                                                                                                                                                                                                                                                                                                                                                                                                  98 FDNYPKGPFWHGVFRDLLGDGIFNSDGDTWLAQRKTAALEFTTRTLRTAMSRWVSRSI-- 155
                                                                                                                                                     GGNSPAAMTTRYVDGGFGMGKYTTPLTR--------
                                                                                                                                                                                                           SAFDRATEATLNRFIFPEFLWRCKKWLGLG-------METTLTSSMAHV 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --VWGED-----CLEFRPE---RWLSADG 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GKDLAY-LOMKNIAGSVLLRH------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           205; Indels 183;
                                                                                                                                                     -----GVDC 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
 밁
                               Š
                                                                   밁
                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-063-733A-46
                                                                                                                                                                                                             US-09-063-733A-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence 46, Application US/09063733A Patent No. 6372211
                                                                                                                                                                          Query Match
                                                                                                                                         Matches
                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 617 amino acids
                                                                                                                                                                                                                                                                                                                                                  NAME: Patterson, Melinda L. REGISTRATION NUMBER: 33,062 REFERENCE/DOCKET NUMBER: MOITELECOMMUNICATION INFORMATION: TELEPHONE: 713-787-1400
                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/063,733A FILING DATE: 21-APR-1998 CLASSIFICATION: 435 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR CONTROLLING TITLE OF INVENTION: INSECTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                567 KLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFS 626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       370 KAALSETLRLYPSVPEDSKHVVADDYLPDGTFVPAGSSVTYSIYSAGRMKG------
                                  110 LAHLDRGSP--PPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHG 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: USA
77210-4433
                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                           STRANDEDNESS:
TOPOLOGY: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                     18
                                                                                                    63 LSREELTAVMRFLTQRLG--PGLVDAAQAR-----PSDNCVFSVELQLPPKAAA 109
                                                                                                                                                                                                                                                              TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                             ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WERYQLAVTQRKEEEPS 643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGGLAETVLVVRSM----STLLNYDYVWDTVFHPSG-AIEIRFYATGYISSAFLFGATGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --RLTVAPGHRVEQKMS 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TKFEQHDSYKFVAFNAGPRVCL------GKDLAY-LQMKNIAGSVLLRH------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTR 566
LKEAPRAEEELPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTG
                                                                     LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI-----KPAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PO Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Greenplate, John T.
                                                                                                                                                                                                                                                                                                                                    713-787-1440
                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Romano, Charles P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Purcell,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Isaac,
                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arnold White & Durkee
                                                                                                                                                                                                                                               not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Barbara G.
                                                                                                                                                         2.5%; Score 101; DB 4; Length 617, 23.3%; Pred. No. 0.25;
                                                                                                                                         39;
                                                                                                                                                                                                                                                                                                                                                                                         MOBT: 022
                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VWGED---
                                                                                                                                       138; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -CLEFRPE - - - RWLSADG
                                                                                                                                         90;
                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                     71
 123
                                                                                                                                         19;
```

S B

359 RPQPEVTWRINGIPVEELAKDQKYRIQR---GALILSNVQPSDTMVTQCEARNRHGLLLA 415

--LQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRD 154

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멂
Š
                                 B
                                                                   δÃ
                                                                                                                                                                                  ; MOLECULE TYPE: protein US-08-506-296B-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 5
US-08-506-296B-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No.
                                                                                                                                             Query Match
                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                              INFORMATION FOR
                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 1253 amino aci
                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: Fitting, Thomas
REGISTRATION NUMBER: 34,163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: TS TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Cunningh
APPLICANT: Crossin,
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       334 LWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           274 LAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASS 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                174 ENTP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEK 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      124 GRLYTHHFTDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          162
                                     299 LLKVGEEDDGEYRCLAENSLGSARHAYYVTVEAAPYWLHKPQSHLYGPGETARLDCQVQG 358
                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE: 24-JUL CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                       23 VLLVGRGGDG------GEPSQLPHCPSVSPSAQP-WTHPGQSQLFA------
                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: La Jolla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                            TELEPHONE:
                                                                                                                            ocal Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LAE---DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF-----FAIQWMETQN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DRATWFGLYYNISGAGEFLHHVGLELLVN-----HKALDPARWTIQKVFYQGRYYDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSG
 -----DLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVE------
                                                                                                             160;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1, Application US/08506296B 6313265
                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E: The Scripps Research Institute
10550 No. 6313265th Torrey Pines Road, TPC-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Crossin, Kathryn L.

VENTION: NEURITE OUTGROWTH-PROMOTING POLYPEPTIDES

VENTION: CONTAINING FIBRONECTIN TYPE III REPEATS AND METHODS OF
                                                                                                                                                                                                                                                        1253 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cunningham,
                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                             (619)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Phillips, Greg
                                                                                                                                                                                                                                                                                                                               (619)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                      24-JUL-1995
                                                                                                                              2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/08/506,296B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bruce A.
                                                                                                                                                                                                                                                                                            14:
                                                                                                             , 68
                                                                                                         Score 100.5; DI
Pred. No. 0.95;
89; Mismatches (
                                                                                                                                                                                                                                                                                                                                                                 TSRI 488.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Version
                                                                                                                                             DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                269;
                                                                                                             Indels
                                                                                                                                             Length 1253;
                                                                                                             349;
                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      273
     100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          221
                                                                           61
                                                                                                               40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
```

23.9%;

Pred. No. 0.31;

18;

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮻.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                             ; ORGANISM: Trichoderma
US-09-314-242-2
                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-314-242-2
                                                                                                        SEQ ID NO 2
LENGTH: 617
                                                                                                                                                                                                                                                                                                                                                        Sequence 2, Application US/09314242A Patent No. 6248575 GENERAL INFORMATION:
  Query Match
                                                                                                                                                                                      APPLICANT: Elizabeth J. Gollghtly
IITLE OF INVENTION: Nucleic Acids Encoding Polypeptides
TITLE OF INVENTION: Having L-Amino Acid Oxidase Activity
FILE REFERENCE: 5556.200-US
CURRENT APPLICATION NUMBER: US/09/314,242A
CURRENT FILING DATE: 1999-05-18
EARLIER APPLICATION NUMBER: 09/080,428
EARLIER FILING DATE: 1998-05-18
                                                                                                                                               NUMBER OF SEQ ID NOS:
SOFTWARE: FastSEQ for
                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       383 RYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQA-----PKTIRDAFCV 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              535 V------TFTCQASFDPSLQPSITWRGDGRDLQELGDSDKYFIEDGRL-VIHSL 581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       330 VASSLWTFSFGLGAFSGPRIFD-----VRFQGE-RLVYEISLQEALAIYGGNSPAAMTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        272 DSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQ--GSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           212 TTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYY 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     416 NAYIYVVQLPAKILTADNQTYMAVQGSTAYLLCKAFG-APVPSV----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   632 LAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAG-----FLH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             768 VSDPFLVVSNTSTFV------PYEIKVQAVNSQGKGPEPQ---VTIGYSGEDYP 812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            717 NPVDVKG-----EGNETTNMVITWKPLRWMDWNAPQVQYRVQWRPQGTRG--PWQEQI 767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   528 VDLDVAGLENWVWAEDMVFVPMAVPWSP-----EHQLQ-RLQVTRKLLEMEEQA 575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661 KWYSLGKVPGNQTSTTLKLSPYVHYTFRVTAINKYGPGEPSPVSE----TVVTPEAAPEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        488 RFYATG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 626 LTQSQVRVSWSPAEDHNAPIEK------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      432 FEQNQ----GLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEI 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                582 DYSD----QGNYSCVASTELD-------VVESRAQLLVVGSPGPVPRLVLSDLHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            920 HPEALHLECQSNTSLLLRWQPPLSHNG 946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   733 ACEVNPLACLPQAAACAPDLPAFSHGG 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TLGIRDLQANDTGRYFCLAANDQN-----NVTIMANLKVKDATQIT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VTVERHGGPLPYHRRPVLFQEYLDIDQMIF---NRELPQASGLLHHCCFYKHRGRNLVTM 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A---FLYGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGE-PLPQNSSMARGFSWERYQ 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KDHVVVPANTTSV-;-ILSGLRPYSSYHLEVQAFNG-----RGSGPASEFTFSTPEGVPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QAIPELEGIEILNSSAVLVK--WRP-VDLAQVKGH--LRGYNVTYWREGSQRKHSKRHIH
                                                                                                                                               for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----YISSAFLFGATGKYG----NOVSEHTLGTVHT-HSAHFK 527
                                                               harzianum
2.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -QWLDEDGTTVLQDERFFPYANG--
  Score 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----YDIEFEDKEMAPE
  DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----QGPRSTIEKKGSR 534
  4.
Length
  617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-063-733A-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 57, Application US/09063733A Patent No. 6372211
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 23.9 Matches 83; Conservative
Query Match
Best Local Similarity
                                                                                                                                                                    TELEFAX: 713-787-1440 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: LBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Rel CURRENT APPLICATION DATA:
                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: MO
TELECOMMUNICATION INFORMATION:
TELEPHONE: 713-787-14400
TELEFAX: 713-787-1440
                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: Arnold White &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: METHODS AND COMPOSITIONS TITLE OF INVENTION: INSECTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Isaac, Barbara G.
APPLICANT: Greenplate, John T.
APPLICANT: Purcell, John P.
APPLICANT: Romano, Charles P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: FC
STREET: FC
ATTY: Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         162 GPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSG 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            274 LAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASS 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   222 DRATWFGLYYNISGAGFFLHHVGLELLVN------HKALDPARWTIQKVFYQGRYYDS 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   110 LAHLDRGSP--PPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHG 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18 LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI-----KPAL 71
                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE: 21-APR CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63 LSREELTAVMRFLTQRLG--PGLVDAAQAR------PSDNCVFSVELQLPPKAAA 109
                                                                                          TYPE: amino acid
STRANDEDNESS: no
                                                                                                                TYPE:
                                                                                                                                                                                                                                                             NAME: Patterson, Melinda L
REGISTRATION NUMBER: 33,06
                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: USA
ZIP: 77210-4433
                                                                           TOPOLOGY:
                                                                                                                             LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GRLYTHHFTDAKHDYYDIGAMRY-PDIPSMK-----RTFNLFKRTKMPLIKYYL 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAE---DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF-----FAIQWMETQN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DGENTPQLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEK 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LKEAPRAEEELPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTG 123
                                                                                                                               617 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PO Box 4433
                                                                           linear
                                                                                                                                                                                                                                                                                                                       21-APR-1998
N: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS 309
                                                                                          not relevant
 2.3%;
22.5%;
                                                                                                                                                                                                                                                                                                                                                                                               Release #1.0,
                                                                                                                                                                                                                                                                                                                                                          US/09/063,733A
                                                                                                                                                                                                                                                             33,062
                                                                                                                                                                        57:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36;
                                                                                                                                                                                                                                                MOBT: 022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Durkee
   Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
 95;
                                                                                                                                                                                                                                                                                                                                                                                             Version #1.30
   1;
                     4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FOR CONTROLLING
                   Length 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

35,

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 8
US-09-136-574A-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Õ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 44, Application US/09136574A Patent No. 6294366 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                  INFORMATION FOR SEQ ID NO: 44:
SEQUENCE CHARACTERISTICS:
LENGTH: 1751 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           274 -----TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: Bak, Mary E.
REGISTRATION NUMBER: 31,215
REFERENCE/DOCKET NUMBER: 199
TELECOMMUNICATION INFORMATION:
TELEPHONE: 215-540-9200
                                                                                                                                                                                                                                                                          FILING DATE: 19-Aug-1998
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                     OPERATING SYSTEM: DOS CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: Howson and Howson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES: 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEKLA 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHGGP 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LSREELTAVMRFLTQRLG--PGLVDAAQAR-----PSDNCVFSVELQLPPKAAA 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TFSFGLGAFSGPRIFDVRFQGERLVYEISLQ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E---DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF-----FAIQWMETQN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLW 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATWFGLYYNISGAGFFLHHVGLELLVN------HKALDPARWTIQKVFYQGRYYDSLA 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LYTHHETDAKHDYYDIGAMRY----PDIPSMKRTENLEKRTGMPLI------KYYLDGEN 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      XXXXXXGGGPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTGGR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI----GGGSGG 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               78;
                                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/932,571 FILING DATE: September 19, 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
ZIP: 19477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CITY: Spring House
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bergqu...
Daniels, Roy
Morgan, Hugh W.
Williams, Diane P.
OF INVENTION: Compositions and Methods for
Treating Cellulose Containing Fal
Compositions
Ag
                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE: PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: Spring House Corporate Center, P.O.
                                                                              TELEX:
                                                                                              TELEFAX: 215-540-5818
                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/09/136,574A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Farrington, Graham K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Anderson, Paige
Gibbs, Moreland
    amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                         1997US001/CIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -EALAIYGGNS 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Box 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fabrics Using Truncated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; MOLECULE TYPE: protein; SEQUENCE DESCRIPTION: SEQ ID NO: US-09-136-574A-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                       US-08-471-119A-2
                                                                                                                                                                           RESULT 9
                                                                                            Sequence 2, Application US/08471119A Patent No. 5827706 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                 1116
APPLICANT: Leither, Ernst
APPLICANT: Schneider, Elisabeth
APPLICANT: Schoergendorfer, Kurt
APPLICANT: Weber, Gerhard
TITLE OF INVENTION: Cyclosporin
                                                                                                                                                                                                                                                                                                                                                                                           1083
                                                                                                                                                                                                                                    1161 TGYIENEKVTG 1171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         724 GDKPQSA----VCDWAQIGASNVTFNFVK--LSSG-----VSGADYYL-EVGF 764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  622 --- AYDNNNLVWGLE---- PGAATSTPAPTSTPTPT--
                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        664 TPTPTPTGSPGTGSGVKVLYKNNETSASTGSIRPWFKIVNGGSSSVDLSRVKIRVWYTVD 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                374 GNSPAAMTTRYVDGGEGMGKYTTPLTRGVDCPYLATYVDWHF-----LLESQAPKTIR- 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             340 GLGAFS-----SLQEALAIYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   823 WGQEPGGATPAPTSTATPTPTPTATPTPTPTPTPTPTVSATPTPAPTASPVGGSYWTPSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       86 AAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGP 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29 GGDGGEPSQLPHCPSVSPSAQPW---THPGQSQLFADLSREELTAVMRFLTQRLGPGLVD 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGEVEHKKQAQFKISV-PQGYPWDPTNDPSYKGLTSQLEKNKYIA------- 621
                                                                                                                                                                                                                                                                          SDFINNETIAG 671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SYGALKVWYANGNLSSPTNVLNPKIKIENVGTTAVDLSRVKVRYWYTIDGEATQSVSVAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SSGAGQ--LQPGKDTGDIQVRFNKNDWSNYNQADDWSWLQSMTNYGENAKVTLYVDGVLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ELLVNHKALDPARWT--IQKVFYQGRY----YDSLAQLEAQFEAG------LVNVVLI 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LPHPS-----YMRDVTVERHGGPLPYHRRPVLFQEYLDIDQM-----IFN 185
                                                                                                                                                                                                                                                                                                                 YYVEIGFKSGAG---
                                                                                                                                                                                                                                                                                                                                                   RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF 660
                                                                                                                                                                                                                                                                                                                                                                                                                                DMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYL--YLASNHSNKWGHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAQIKVWYANGNLGS-----MTNVLNPKIKIENVGTT-----AVDLSRVKVRYWYTID 1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AIEIR-FYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIQKGSGSYNQSNDYSVRSANSYIENEKVTGYIDDVL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SINPAYIDVKFVKLGANAG-----GAD----YYVEIGFKSGAGVLAAGQSTKEIRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----PDNGTGGSWSLKSPVP------PGPAP-PLQFYPQGPRFSVQGSRVASSLWTFSF 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---DAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVMDTVFHPSG 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.3%;
Cyclosporin Synthetase
                                                                                                                                                                                                                                                                                                               -VLAAGQSTKEIRLSIQK------GSGSYNQSNDYS-VRSA 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83; Mismatches 284;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 94.5; DI
Pred. No. 7.3;
                                                                                                                                                                                                                                                                                                                                                                                           -TQSVSVTSSINPAYIDVKFVKLGANAGGAD 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----PTPTPTVTATPT-P 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1751;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---- VWGR--EPGR 1034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                    600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
```

```
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; ORGANISM: TOLYPOCLADIUM niveum
; STRAIN: ATCC 34921
US-08-471-119A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
      밁
                                            Ş
                                                                                      밁
                                                                                                                         Ş
                                                                                                                                                                       В
                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                              δã
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.3%; Score 94.5; DB 2; Best Local Similarity 18.1%; Pred. No. 3.2e+02; Matches 154; Conservative 110; Mismatches 307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: KASSENOFF, Melvyn
REGISTRATION UMBER: 26,389
REFERENCE/DOCKET NUMBER: 100-
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201 503 8874
TELEFAX: 201 503 8874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12682 NPDALAVTDTSTKLTYAELDQQSDHVAAWLSKQKLPAESIVVVLAPRSSETIVACIGI-- 12739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: 201 503 8807 INFORMATION FOR SEQ ID NO:
13017 LARGYTDPSLNTGRFIHITIDGKQVQAYR-----TGDRVRYRPRDYQIEFFGRLDQ 13067
                                                                                 12983 GTSLGPKSKAYIMD---QDQQLV----
                                                                                                                                                                 12923 VLSSLESLYIGGDRLDGADATKVKDLVKGKAYNAYGPTENSVMSTIYTIEHETFANGVPI 12982
                                                                                                                                                                                                                                                  12870 IFTTLLNGGTLFCISYFTVLDSKA-LSAAFSDHRINITLLPPA-----LLKQCLADAPS 12922
                                                                                                                                                                                                                                                                                                                                    12810 PSASSLAYVIFTSGSTGRPKGVMVEHRGVISLVKQNASRIPQSLRMAHVSNLAFDASVWE 12869
                                                                                                                                                                                                                                                                                                                                                                                                                            12779 IPDNKT-----ADV-RMVFISD------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: unk
MOLECULE TYPE:
HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, VACURENT APPLICATION DATA:
APPLICATION NUMBER: US/08/471,119A
FILING DATE: 06-JUN-1995
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
ADDRESSEE: No. 5827706artis Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 15281 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                               342
                                                                                                                                                                                                                                                                             261 IQKVFYQG-----RYY---DSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPPGP- 310
                                                                                                                                                                                                                                                                                                                                                                       224 ATWFGLYYNI--SGA-----GFFLHHVGLELL------
                                                                                                                                                                                                                                                                                                                                                                                                                                                               164 LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   104 PPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGP 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET: 59 Route 10
CITY: East Hanover
STATE: New Jersey
COUNTRY: USA
ZIP: 07936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       45 SPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL-GPGLVDAAQARPSDNCVFSVELQL 103
                                                                                                                    GAFSGPR----IFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTP 397
                                       LTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAE 457
                                                                                                                                                                                                          59 Route 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            : protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOO-8029/CONT/CONT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                          -----IVASKTDKSYSPGTR 12809
                                                                                 -PAGVMGELVVAGDG----- 13016
                                                                                                                                                                                                                                                                                                                                                                         ----- VNHKALDPARWT 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 15281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels 279; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41;
```

3%; Score 93.5; DB 5; Length 485; 8%; Pred. No. 0.99; 861; Mismatches 151; Indels 97; Gaps LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 45 :::::
IMMUNOASSAYS USING MUTANT OSPHATE DEHYDROGENASES S Version #1.25 (EPO) 3437
GKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNF 710 :: : : : : :
GEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIA670
EHQLORLQVT-RKLLEMEEQAAFL-VGSATPRYLYLASNHSNKWGHPRGYRIQMLSFA 611
SEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPW
TVLVVRSMSTLLNYDYVWDTVFHÞSGAIEIRFYATGYISSAFLFGATGKYGNQV 511 ; ; ; ; ; ; ; ; ; ; ;

```
õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 11
US-07-737-071A-2
                      Ş
                                                 Query Match
Best Local Similarity 20.8
Matches 81; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 2, Application US/07737071A
Patent No. 5229286
GENERAL INFORMATION:
APPLICANT: JARSCH, Michael
APPLICANT: JARSCH, Michael
APPLICANT: LANG, Gunter
TITLE OF INVENTION: CLONING AND OVEREXPRESSION OF
TITLE OF INVENTION: GLUCOSS-6-PHOSPHATE DEHYDROGENASE FROM LEUCONOSTOC
TITLE OF INVENTION: DEXTRANICUS
NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
ANDRESCES.
                                                                                                                                                                                                                                     TELEX: 440142
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 486 amino acid
                                                                                                                                                                  TYPE: AMINO ACID
TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                             NAME: MUTTAY, ROBERT B.
REGISTRATION NUMBER: 22,890
REFERENCE/DOCKET NUMBER: 91:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 659-2930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/737,071A
FILING DATE: 19910730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: DE P 4024158.9
FILING DATE: 30-JUL-1990
ATTORNEY/AGENT INFORMATION:
NAME: MUITAY, ROBERT B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  707 PYNFFDEDPSFYSADSIYFRGDQDAGACEV 736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  248 LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          611 AGEPLPO--NSSMARGFSWERYQLAVTORKEEEPSSSSVFNQNDPWAPTVDFSDFI---- 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     201 AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT------MQIVGW 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141 YNRLMIEKPFGTSYATAEELQSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     507
406 YLATYVDWHF------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CILL.
COUNTRY: C. 20006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              355 TFNFGSEQEAQESVLSIII---DPKGAIEL 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 1725 K Street, N.W., Suite 1000 CITY: Washington D.C.
                                                                                                                                                                                                                                                                                                                           TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE: Armstrong, Nikaido, Marmelstein Kubovcik & ADDRESSEE: Murray
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VPADSKNNTFIAGELQFDLPRW------EGVPFYVRSGKRLAAKQTRVDIVFKAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PWSPEHQLQRLQVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----NNETIAGK---DLVAWVTAGFLHIPHAEDIPNTVTVGN------GVGFFLR 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV------
                                                                                                                                                                                                               AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               United States of America
                                                                                                                                                                                                                                                                                                                           (202) 887-0357
                                                                                     2.3%; Score 93.5;
20.8%; Pred. No. 1;
                                                                 61; Mismatches 151;
                                                                                                                                                                                                                                                                                                                                                                                              911028
                                                                                                         DB 1;
                                                                                                         Length 486;
                                                                 Indels
                                                               97;
                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     551
                                                                 20;
```

H	Db Oy Oy Oy Db Db Oy Oy Db Oy Db Db Db Db Db Db Db Db Db D
GENERAL INC. 3000/0/ GENERAL INCRAFION: JARSCH, MICHAel APPLICANT: JARSCH, MICHAel APPLICANT: LANG, GUNTER TITLE OF INVENTION: CLUONING AND OVEREXPRESSION OF TITLE OF INVENTION: GLUCOSE-6-PHOSPHATE DEHYDROGENASE FROM LEUCONOSTOC TYPE COPENTION: GSTEME PATE OF THE PROPERTY OF THE PRO	31 857 8507 142 2552 202 202 202 202 307 707 707 3356

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-022-096-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-445-463B-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 8, Application US/08445463B Patent No. 6033890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
APPLICATION NUMBER: US 0 FILING DATE: 08-APR-1993 ATTORNEY/AGENT INFORMATION:
                              PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/044,857
                                                                                                                                    COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Barnett, Christopher C.
TITLE OF INVENTION: Homogenous Immunoassays Using Mutant
TITLE OF INVENTION: Glucose-6-Phosphate Dehydrogenases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  406 YLATYVDWHF------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            356 TFNFGSEQEAQESVLSIII --- DPKGAIEL 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      307 VPADSKNNTFIAGELQFDLPRW------EGVPFYVRSGKRLAAKQTRVDIVFKAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               552 PWSPEHQLQRLQVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     142 YNRLMIEKPFGTSYATAEELOSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           202 AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT-------MQIVGW 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   85
                                                                                                                                                                                                                                                                                      STREET: 1717 Dee
CITY: Deerfield
STATE: Illinois
                                                                                CLASSIFICATION:
                                                                                                APPLICATION NUMBER: US/08/445,463B FILING DATE: 22-MAY-1995
                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PYNFFDEDPSFYSADSIYFRGDQDAGACEV 736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----NNETIAGK---DLVAWVTAGFLHIPHAEDIPNTVTVGN-------GVGFFLR 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGEPLPQ--NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HDVTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG- 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA-----QAEAFIAHFSYRA 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ETVLVVRSMSTL-----LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                          60015
                                                                                                                                                                                                                                                                                                                               E: Dade Behring Inc.
1717 Deerfield Road
                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Caldwell, Robert M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Becker, Martin
Ullman, Edwin F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Silen, Joy L.
Levy, Mark J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Goodman, Thomas C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bott, Richard R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Jakobovits,
                                                                                                                                                                                                              Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Edward B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 93.5;
Pred. No. 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches 151;
                                                                                                                                                          Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 14
US-08-445-464C-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-445-463B-8
                                                                                                                                                                                                                                                                                                                                                                        Sequence 8, Applic
Patent No. 609056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: (847) 267-5376 INFORMATION FOR SEQ ID NO: 8:
                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: BEH-7261 DIV 2
TELECOMMUNICATION INFORMATION:
TELEPHONE: (847) 267-5364
TELEPAX: (847) 267-5376
                                                                                                                                                                                                       APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                           APPLICANT: Barnett, Christopher C.
TITLE OF INVENTION: Homogenous Immunoassays Using Mutant
TITLE OF INVENTION: Glucose-6-Phosphate Dehydrogenases
                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                406 YLATYYDWHF------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local S. 81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          356 TFNFGSEQEAQESVLSIII --- DPKGAIEL 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              611 AGEPLPQ--NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI---- 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    552 PWSPEHQLQRLQVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           142 YNRLMIEKPFGTSYATAEELQSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           707 PYNFFDEDPSFYSADSIYFRGDQDAGACEV 736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  307 VPADSKNNTFIAGELQFDLPRW-------EGVPFYVRSGKRLAAKQTRVDIVFKAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 202 AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT------MQIVGW 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31 YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA-----QAEAFIAHFSYRA 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER:
                                 CITY: Deerfield
STATE: Illinois
                                                                      STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH:
                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----NNETIAGK---DLVAWVTAGFLHIPHAEDIPNTVTVGN------GVGFFLR 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HDVTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG- 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ETVLVVRSMSTL------LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
60015
                                                                                                                                                                                                                                                                                                                                                                                           Application US/08445464C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             486 amino acids
                                                                        1717 Deerfield Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                       Caldwell, Robert M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                       Bott, Richard R.
                                                                                                                                                                                                                                           Ullman, Edwin F.
                                                                                                                                                                                                                                                            Becker, Martin
                                                                                                                                                                                                                                                                            Goodman,
                                                                                                                                                                                                                                                                                                 Silen, Joy L.
Levy, Mark J.
                                                                                                                                                                                                                                                                                                                                         Jakobovits, Edward B
                                                                                        Dade Behring Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.3%; Score 93.5;
20.8%; Pred. No. 1
                                                                                                                                                                                                                                                                                  Thomas C.
                                                                                                                             124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                39,074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20;
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; ANTI-SENSE: US-08-445-464C-8
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                      RESULT 15
US-08-044-857D-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                   Sequence 8, Application US/08044857D Patent No. 6455288 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (847) 267-5376
INFORMATION FOR SEQ ID NO: 8:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION UMBER: US 08/044,857
FILING DATE: 08-APR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE/DOCKET NUMBER: BE TELECOMMUNICATION INFORMATION: TELEPHONE: (847) 267-5364
TELEPHONE: (847) 267-5376
TELEPHONE: (847) 267-5376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
NAME: RUSZALA, LOIS K.
REGISTRATION NUMBER: 39,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          552 PWSPEHQLQRLQVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           406 YLATYVDWHF------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC
OPERATING SYSTEM:
SOFTWARE: Patent1
                                                                                                                                                                                                                                                                                  307
                                                                                                                                                                                                                                                                                                                                                                                                                             202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/0:
FILING DATE: 22-MAY-1995
                                                                                                                                                                                                            356 TFNFGSEQEAQESVLSIII---DPKGAIEL 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85 HDVTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG- 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ETVLVVRSMSTL-----LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA-----QAEAFIAHFSYRA
                                                                  APPLICANT: Jakobovits,
                                                                                                                                                                                                                                                                                VPADSKNNTFIAGELQFDLPRW------EGVPFYVRSGKRLAAKQTRVDIVFKAG 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV-----
                                                                                                                                                                                                                                             PYNFFDEDPSFYSADSIYFRGDODAGACEV 736
                                                                                                                                                                                                                                                                                                                    -----NNETIAGK---DLVAWVTAGFLHIPHAEDIPNTVTVGN------GVGFFLR 706
                                                                                                                                                                                                                                                                                                                                                        LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD
                                                                                                                                                                                                                                                                                                                                                                                        AGEPLPQ--NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI----
                                                                                                                                                                                                                                                                                                                                                                                                                             AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT------MQIVGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YNRLMIEKPFGTSYATAEELQSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        486 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PatentIn Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Floppy disk
                               Silen, Joy L.
Levy, Mark J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       single
                Goodman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein
Becker, Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/08/445,464C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39,074
                Thomas C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61;
                                                                    Edward B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BEH-7261 DIV 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 93.5;
Pred. No. 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches 151; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             84
                                                                                                                                                                                                                                                                                                                                                                                                                               248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        551
                                                                                                                                                                                                                                                                                                                                                                                             664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20;
```

```
SEQUENCE DESCRIPTION: SEQ ID NO: 8: US-08-044-857D-8
                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
멍
                                                                              밁
                                                                                                                    ş
                                                                                                                                                               밁
                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                  20
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: 8: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                142
                                                                                                                                                                                                                                                                                                                                                                                                                                                 406 YLATYVDWHF------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 456
                                                                                                                                                                                                                                                                                                                                                                 457 ETVLVVRSMSTL------LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 506
                                                                                                                                                                                               552 PWSPEHQLQRLQVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 610
307
                                                                            249 LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFYRAQYGA-GDTADYKPYLEEAD
                                                                                                                                                                                                                                                                                                                            85 HDVTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG- 141
                                                                                                                                                                                                                                                                                                                                                                                                             31 YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA-----QAEAFIAHFSYRA 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHETICAL: NO
ANTI-SENSE: NO
ORIGINAL SOURCE:
ORGANISM: Leuconostoc dextranicum
STRAIN: ATCC 19255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PAtentin Release #1.0, Ve
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/044,857D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Caldwell, Robert M.
Bott, Richard R.
Barnett, Christopher C.
Barnett, Christopher C.
Glucose-6-Phosphate Dehydrogenases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: Dade Behring Inc
STREET: 1717 Deerfield Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 08-Apr-1993
CLASSIFICATION: <UNKNOWN>
ATTORNEY/AGENT INFORMATION:
NAME: RUSZALA, LOIS K.
REGISTRATION NUMBER: 39,074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: BEH-7261 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
VPADSKNNTFIAGELQFDLPRW----
                                                                                                                                                           AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT------MQIVGW 248
                                                                                                                                                                                                                                            YNRLMIEKPFGTSYATAEELQSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA 201
                                                                                                                                                                                                                                                                                    YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV-----
                                                                                                                    AGEPLPQ--NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI----
                                    -----NNETIAGK----DLVAWVTAGFLHIPHAEDIPNTVTVGN--------GVGFFLR 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY: USA
ZIP: 60015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: Deerfield
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 486 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ELEPHONE: (847)
ELEFAX: (847) 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267-5376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 93.5; DB 4;
Pred. No. 1;
1; Mismatches 151;
  ---EGVPFYVRSGKRLAAKQTRVDIVFKAG 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                             551
                                                                                                                             664
```

707

PYNFFDEDPSFYSADSIYFRGDQDAGACEV

736

Db 356 TFNFGSEQEAQESVLSIII---DPKGAIEL 382
Search completed: May 20, 2003, 11:40:55
Job time: 36.5906 secs

Title: Perfect score: Sequence:

9 ::

Scoring table:

Minimum DB Maximum DB

seq

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d. No. is the number of results predicted by chance to have a
re greater than or equal to the score of the result being printed,
is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-081-408-2
4095
1 MNQKTILVLLILAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              375593 seqs, 99172665 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  May 20, 2003, 11:37:59; Search time 121.567 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Published_Applications_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : //cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US00_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep: *
: //cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MNQKTILVLLILAVITIFAL.....QAAACAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Copyright
                                                                                                                                                                                                                                                                                                                                                                             Length
         763
998
729
617
980
2224
1194
617
944
681
601
1447
1447
1447
635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore
(c) 1993
                                                                                                                                                                                                                                                                                                                                                                                 DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gapext 0.5
                                                                                    US-10-081-408-2
US-09-919-497-51
US-09-919-497-51
US-10-005-530-58
US-10-005-530-58
US-10-105-530-14
US-09-738-626-5832
US-10-005-530-66
US-10-213-990-27
US-10-005-530-36
US-10-005-530-37
US-09-734-569-172
US-09-734-569-172
US-09-935-301-1844
US-09-955-301-194
US-09-955-301-194
US-09-955-301-194
US-09-955-301-194
                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          version 5.1.5 - 2003 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (without alignments)
622.443 Million cell updates/sec
Sequence 2, Appli
Sequence 51, Appl
Sequence 58, Appl
Sequence 58, Appl
Sequence 14, Appl
Sequence 14, Appl
Sequence 14, Appl
Sequence 17, Appl
Sequence 27, Appl
Sequence 37, Appl
Sequence 364, App
Sequence 172, Appl
Sequence 172, Appl
Sequence 19, Appl
Sequence 19, Appl
Sequence 19, Appl
Sequence 19, Appl
Sequence 247, Appl
Sequence 247, Appl
Sequence 247, Appl
                                                                                                                                                                                                                                                                                                                                                                           Description
                                                                                                                                                                                                                                                                                                                                                                   Sequence 2, Application US/10081408

Patent No. US20020160482A1

GENERAL INFORMATION

APPLICANT: Abrahms, n , Lars

APPLICANT: Nilsson, Joakim

TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION

FILE REFERENCE: 13425-053001

CURRENT APPLICATION NUMBER: US/10/081,408

CURRENT APPLICATION NUMBER: SE 0100625-3

PRIOR APPLICATION NUMBER: US 60/272,247

PRIOR APPLICATION NUMBER: US 60/272,247

PRIOR APPLICATION NUMBER: US 60/272,247

PRIOR FILING DATE: 2001-02-23

PRIOR FILING DATE: 2001-02-28

NUMBER OF SEQ ID NOS: 20

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 2

LENGTH: 763

TYPE: PRT

ORGANISM: Homo sapiens
                                                                                                             δÃ
                                                                          В
                                                                                                                                                    밁
                                                                                                                                                                                δÃ
                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                           Ş
       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 1
US-10-081-408-2
                                                                                                                                                                                                                                                                                                  Matches 763;
                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19
                                                                                                                                                                                                                       QMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AREALAIVFFGROPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDID
     QMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL
                                                                            AREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDID
                                                                                                                                                                                                                                                                                                100.0%;
ilarity 100.0%;
Conservative 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               390
390
388
388
5507
306
618
901
305
911
1430
365
516
882
882
882
882
882
882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-174-590-574
US-10-176-758-574
US-10-175-737-574
US-10-175-737-574
US-10-175-738-574
US-10-176-752-574
US-10-176-482-574
US-10-176-757-574
US-10-176-913-574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-738-626-6558
US-09-908-193-2
US-09-819-104A-2
US-09-361-630-1
0 US-09-740-641-2
US-10-005-530-56
US-10-017-910-7
US-10-1017-910-7
US-10-1017-910-7
US-09-855-754-4
US-10-227-353-4
0 US-09-855-754-4
0 US-09-855-754-4
0 US-09-855-754-4
0 US-09-855-754-4
0 US-09-855-754-4
0 US-09-855-754-7
0 US-09-925-299-1007
0 US-09-925-299-1007
0 US-09-945-185-2
0 US-09-945-185-2
                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-925-300-1519
                                                                                                                                                                                                                                                                                                                 Score 4095;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                    BB
                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 6558, Apsisequence 2, Applisequence 2, Applisequence 1, Applisequence 56, Applisequence 7, Applisequence 7, Applisequence 7, Applisequence 4, Applisequence 4, Applisequence 2, Applisequence 2, Applisequence 1007, Apsisequence 34, Applisequence 37, Applisequence 574, App
                                                                                                                                                                                                                                                                                                  0
```

Result

Score

% Query Match

4095 3967 2536.5 106 104 103 102 101

60

0

60

180 180 100 96

95.5 93.5 93.5 93.9 93.9 93.5

Pred. No.

```
APPLICANT: Abrahms, n , Lars
APPLICANT: N11sson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001
CURRENT APPLICATION NUMBER: US/10/081,408
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: SE 0100625-3
PRIOR FILING DATE: 2001-02-23
PRIOR APPLICATION NUMBER: US 60/272,247
PRIOR APPLICATION NUMBER: US 60/272,247
PRIOR FILING DATE: 2001-02-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 2
US-10-081-408-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
   Š
                                    밁
                                                                Ş
                                                                                                                                                                 ; OTHER INFORMATION: Recombinant construct US-10-081-408-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 20, Application U Patent No. US20020160482A1 GENERAL INFORMATION:
                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 20
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 20
LENGTH: 998
TYPE: PRT
                                                                                                 Matches
                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                             ORGANISM: Artificial Sequence
                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241 HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW 300
                                    263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601
    88
                                                                   28
                                                                                                 Local Similarity
les 735; Conserv
                             DSIYFRGDODAGACEVNPLACLPQAAACAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AEDMVFVPMAVPWSPEHOLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PSGAIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV 360
QARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSA 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PSGAIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/10081408
                                                                                                  Conservative
                                                                                                            96.9%;
                                                                                        Score 3967; D
Pred. No. 0;
1; Mismatches
                                                                                                                              DB 9;
                                                                                               0
                                                                                                                             Length 998
                                                                                               Indels
                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                               0
```

```
; SEQ ID NO 51
; LENGTH: 729
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-919-497-51
                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: MUTTER, GEOTGE L.
TITLE OF INVENTION: PROGNOSTIC CLASSIFICATION OF
FILE REFERENCE: B0801/7225
CURRENT APPLICATION NUMBER: US/09/919,497
CURRENT FILING DATE: 2001-07-31
PRIOR APPLICATION NUMBER: US 60/221,735
PRIOR FILING DATE: 2000-07-31
NUMBER OF SEQ ID NOS: 100
SOFTWARE: PatentIn version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                      RESULT 3
US-09-919-497-51
                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
             Ş
                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                    Query Match 61.9%;
Best Local Similarity 63.4%;
Matches 483; Conservative 9
                                                                                                                                                                                                                                                                              Sequence 51, Appl Patent No. US2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          443
                                                                                                                                                                                                                                                                                                                                                                                 748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148
                                                                                                                                                                                                                                                                                                                                                                                                          923
                                                                                                                                                                                                                                                                                                                                                                                                                                                         863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        448 YSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            323
                                                                                                                                                                                                                                                                                                                                                          983
                                                                                                                                                                                                                                                                                                                                                                                                                                 889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            383
LVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAPDLPAFSHGGFSHN 998
                                                                                                                                                                                                                                                                                                                                                                                CAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                       LLEMEEQAAFLYGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ERYQLAVTQRKEEEPSSSSYFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN 442
                                                                                                                                                                                                                                                                                          Application US/09919497
                                                                                                                                                                                                                                                                                0106662A1
                                     90;
                                    Score 2536.5; DB 1
Pred. No. 5.7e-215;
90; Mismatches 154;
                                     154;
                                                              DB 10;
                                                                                                                                                                                                                                            ဝ္ဗ
                                                                                                                                                                                                                                            ENDOMETRIAL CANCER
                                     Indels
                                                              Length
                                     35;
                                                               729;
                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                           982
                                                                                                                                                                                                                                                                                                                                                                                                                                                         922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         742
```

MHLKIVLAFLALSLITIFALAYVLLTSPGGS----SQPPHCPSVSHRAQPWPHPGQSQLF

56

```
Sequence 58, Application US/10005530

Publication No. US20030026795A1

GENERAL INFORMATION:
APPLICANT: Isaac, Barbara G.
APPLICANT: Greenplate, John T.
APPLICANT: Purcell, John P.
APPLICANT: Romano, Charles P.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR CONTROLLING INSI
FILE REFERENCE: 11899.0022.DVUS01 (MOBT:022--2)
CURRENT APPLICATION NUMBER: US/10/005,530

CURRENT FILING DATE: 1998-04-21
PRIOR APPLICATION NUMBER: 09/063,733
PRIOR APPLICATION NUMBER: 09/063,733
PRIOR FILING DATE: 1998-04-21
INUMBER OF SEQ ID NOS: 58
SOFTWARE: Patentin version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
SEQ ID NO 58
                                                                                                                                                                                                                                                                                                                                                                              889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                               HPRGYRIOMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSYFNQNDPWAPTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PSGAIEIRFYATGYISSAFLFGATG--KYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QMIENRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AREALAIVLFGGQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLRAEFTQMW 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDID 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RHLKDVELPKAPIFLSST--FNYNGSTLAAVHATPRGLRSRERTTWIGLYHNISGVGLFL
                                                                                                                                                                                                                                                                                                                                                                             SPGSVYFEKGQDAGLCSINPVACLPDLAACVPDLPFSYHGF 729
                                                                                                                                                                                                                                                                                                                                                                                                             SADSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGF 760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFY 718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VVAEDVVFKPVAAPWNPEHWLQRPQLTRQVLGKEDLTAFSLGSPLPRYLYLASNQTNAWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PNGALEGRVHATGY INTAFLKGGEEGLLFGNRVGERVLGTVHTHAFHFKLDLDVAGLKNW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AVQLLPGAVCVFEEAQGLPLRRHHNYLQNHFYGGLASSALVVRSVSSVGNYDYIWDFVLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SLRSRNSPGPLPPLQFSPQGSQYSVQGNLVVSSLWSFTFGHGVFSGLRIFDVRFQGERIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HPVGLELLLDHRALDPAHWTVQQVFYLGHYYADLGQLEREFKSGRLEVVRVPLPPPNGAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADLSREELTAVMRFLTQRLGPGLVDAAQAQPSDNCIFSVELQLPPKAAALAHLDRGSPPP 116
                                                                                                                                                                      INSECTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                  687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       594
```

US-09-908-193-22

Sequence 22, Application US/09908193
Publication No. US20020192748A1
GENERAL INFORMATION:

APPLICANT: RASTELLI, LUCA APPLICANT: SHIMKETS, RICHARD A. APPLICANT: ZERHUSEN, BRYAN APPLICANT: MALYANKAR, URIEL M. APPLICANT: PADIGARU, MURALIDHAR

```
; ORGANISM: Artificial Sequence; PEATURE:
; OTHER INFORMATION: Synthetic Polypeptide; NAME/KEY: MISC_FEATURE; LOCATION: (74)...(79)
; OTHER INFORMATION: Xaa - Unknown
US-10-005-530-58
                                   δõ
                                                                           밁
                                                                                                                 Ş
                                                                                                                                                        밁
                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.6%;
Best Local Similarity 22.8%;
Matches 79; Conservative 40
                                   336 TFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS
                                                                                                                                                                                                224 ATWFGLYYNISGAGFFLHHVGLELLVN---------KALDPARWTIQKVFYQGRYYDSLA
                                                                                                                                                                                                                                                                     164 LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR
                                                                                                                                                                                                                                                                                                                                                         110 LAHLDRGSPPPAREALAIVFFGROPOPNVSELVVG-----PLPHPSYMRDVTVERHGGP
                                                                                                                                                                                                                                                                                                                 74 XXXXXXGGPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTGGR 125
                                                                                                                                                                                                                                                                                                                                                                                                     18 LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSIK----PGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                           63 LSREELTAYMRFLTQRLG--PGLVDAAQAR-----PSDNCVFSVELQLPPKAAA 109
                                                                                                                 QLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLW 335
                                                                                                                                                          TP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEKLA
                                                                                                                                                                                                                                        LYTHHETDAKHDYYDIGAMRY----PDIPSMKRTFNLEKRTGMPLI-----KYYLDGEN 175
                                                                           E---DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF----FAIQWMETQN---
-TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 106;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB
1.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9; Length 617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                       376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                  275
                                                                                                                                                                                                                                                                                223
                                                                                                                                                                                                                                                                                                                                                             163
                                                                                                                                                                                                                                                                                                                                                                                                     73
                                                                               273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18;
```

APPLICANT: PADIGARN, UNLEL M.

APPLICANT: PADIGARU, MURALIDHARA

TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES AND POLYPEPTIDES ENCODED THEREBY
FILE REFERENCE: 21402-062

CURRENT APPLICATION NUMBER: US/09/908,193

CURRENT FILING DATE: 2001-07-18

PRIOR APPLICATION NUMBER: 60/221,650
PRIOR APPLICATION NUMBER: 60/221,650
PRIOR APPLICATION NUMBER: 60/221,233
PRIOR FILING DATE: 2000-07-28

PRIOR APPLICATION NUMBER: 60/221,233
PRIOR APPLICATION NUMBER: 60/221,233
PRIOR APPLICATION NUMBER: 60/221,837
PRIOR APPLICATION NUMBER: 60/221,875
PRIOR FILING DATE: 2000-07-18
PRIOR APPLICATION NUMBER: 60/218,875
PRIOR APPLICATION NUMBER: 60/218,875
PRIOR APPLICATION NUMBER: 60/218,870
PRIOR APPLICATION NUMBER: 60/218,870
PRIOR APPLICATION NUMBER: 60/218,870
PRIOR APPLICATION NUMBER: 60/218,870
PRIOR FILING DATE: 2000-07-18

NUMBER OF SEQ ID NOS: 74

SOFTWARE: PATENTIN PATENT

```
RESULT 6
US-10-115-563-14
                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 14, Application US/10115563 Publication No. US20030008307A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 134; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      935 SASCSYPDL 943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 616 PQNSSMARGFSWERYQL-----AVTQ------RKEEEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        895 DLISGVG------DPG------QGAAWLDRELGGCELAAPGPDRLTCLPEAA 934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       696 TVGNGVGEFLRPYNFFDEDPSFYSADSIYFRG----DQDAGACEV-----NPLACLPQAA 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              561 RLQVTRKLLEMEEQAAF--LVGSATPRYLYLASNHSNK---WGHPRGYRIQMLSEAGEPL 615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          722 STATPGNPALYSRARLGPPSPPAAH-----ELESLVH------PHPQDWSPPPS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          619 HTQPEHQWTLLTTQGNIFSAEVHGLESDTRYFFKMGARTEVGPGPFSRLQDVITLQEKLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                385 -VDGGFGM------GKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQN 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        342 GAFSGPRI--FDVRF-----QGERLVYEISLQEALAIYGGNSPAAMTTRY------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         444 EVKLVAFNKHEDGYAAVWKGKTEKAPAPDMPIQRGPPLPPAHVHAESNSSTSIW-LRWKK 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        287 NVVLIP----DNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQG-SRVASSLWTFSFGL 341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               388 ISGYKLYWREVGAEEEANGDRLPGGRGDQAWDVGPV----RLKKKVKQYELTQLVPGRLY 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         467 TLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFL-------FG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   233 ISGAGFFLHHVGLELLVNHKALDPAR----WTIQKVFYQGRYYDSLAQLE-AQFEAG-LV 286
                                                                                                                                                                                                                                                        Greengard, Judith S
TITLE OF INVENTION: METHODS FOR DIAGNOSING ACTIVATED PROTEIN
C RESISTANCE ASSOCIATED WITH A FACTOR V GENETIC MUTATION
AND COMPOSITIONS THEREOF
     COMPUTER READABLE FORM
                                                                                                                                                                                                          NUMBER OF SEQUENCES: 28
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AC----RNQVEAEVIVHSDF--SASNGNPDL-------HLQDLEPEDPLPPEAP.894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DMDGPFGSVVERSTLPDRPSTPPSDLRLSPLTPSTVRLHWCPPTEPNGEIVEYLILYSSN 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACA---PDL 752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGKYGNQV--SEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQ 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DSLDMHSV-----TGIIVGVCLGLLCLLACMCAGLRRSPHRESLPGLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QGLPLRR------HHSDLYSHY------FGGLAETVLVVRSMS 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PDFTTVKIVNYTVRFSPWGLRNASLVTYYTSSGEDILI-GGLKP---FTKYEFAVQSHGV 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDI-----PNTV 695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----SWAGCELPQAGPRPALTRALLPPAGTGQTLLLQALVYDAIKGNGRKKSPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----DVEDRAEVHSLMGGGVSE----GRSHSKRKISWAQPSG-----LSWAG---
                                COUNTRY: USA
ZIP: 92037
                                                                               CITY: La Jolla
STATE: CA
                                                                                                                           Patent Counsel STREET: 10666 No. US20030008307Alth Torrey Pines Road,
                                                                                                                                                                               ADDRESSEE: The Scripps Research Institute, Office of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                   Griffin, John H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.5%; Score 104; DB 9; Length 980; 20.0%; Pred. No. 4.2; ative 69; Mismatches 204; Indels 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels 262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  72]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          678
                                                                                                                                                                                            US-09-738-626-5832

; Sequence 5832, Application US/09738626
; Publication No. US20020197605A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: linear

HOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO:
US-10-115-563-14
                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                               RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.5%; Score 103; DB 9; Length 2224; Best Local Similarity 20.7%; Pred. No. 18; Matches 76; Conservative 46; Mismatches 123; Indels 122;
                                                                    APPLICANT: NAKAGAWA, SATOSHI
APPLICANT: MIZOGUCHI, HIROSI
APPLICANT: ANDO, SEIKO
APPLICANT: HAYASHI, MIKIRO
APPLICANT: OCHIAI, KEIKO
                        APPLICANT:
                                                   APPLICANT:
APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO: 14: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       169 RPVLFQEYLDIDQMIFNRELPQA--SGLLHHCCF-----YKHRGRNLVTMTTAPR 216
                                                                                                                                                                                                                                                                                                                                                                                                                                             447 LYSHYFG 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           164 DPPCLTHIYY-----SHENLIEDFNSGLIGPLLICKKGTLTEGGTQKTFDKQIVLLFAV 217
                                                                                                                                                                                                                                                                                                                                                                                            382 NFSNQIG 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           324 IDIKNCPKKTRNLKKITREQRRHMKRWEYFI - - AAEEVIWDYAPVIPANMDKKYRSQHLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     411 VD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   269 IHFNGQVLEQNHHKVSAITLVSATSTTANMTVGPEGKWIISSLTPKHLQAG-----MQAY 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     352 VRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTP-LTRGVDCPYLATY 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218 FDESKSWSQSSSL----MYTVNGYVNGTMPDITVCAHDHIS--WHL---LGMSSGPELFS 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       217 GLQSGDRATWFGLYYNIS-GAGFFLHHVGLELLVNHKALDPAR-----WTIQK----- 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  264 -----VFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGT---GG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 KKIVYREY----EPYFKKEKPQSTISGLLGPTLYAEVGDIIKVHFKNKADK--PLSIHPQ 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REGISTRATION NUMBER: 34,163
REFERENCE/DOCKET NUMBER: 449.0
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/410,488
FILING DATE: 24-MAR-1995
ATTORNEY/AGENT INFORMATION:
NAME: Fitting, Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GIR-----YSKLSEGASYLDHTFPAEKM--DDAVAPGREYTYEWSISEDSGPTHD 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----SWSLKSPVPPGPAPPLQFYPQG--PRFSVQGSRVASSLWTFSFGLGAFSGPRIFD 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/10/115,563 FILING DATE: 02-Apr-2002 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: 619-554-6312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: 619-554-2937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 2224 amino acids
SENOH, AKIHIRO
                     YOKOI, HARUHIKO
TATEISHI, NAOKO
                                                                                                                                                HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----WHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSD 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  298
```

밁 õ 밁 δÃ 밁 Š 밁 Ş В Ş 밁 δÃ 밁 Š g Ş 밁 Q 밁 Š В Ş 밁 Š

```
US-10-005-530-46
US-10-005-530-46
; Sequence 46, Application US/10005530
; Publication No. US20030026795A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; TYPE: PRT ; ORGANISM: Corynebacterium glutamicum US-09-738-626-5832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: Patentin ver. 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 5832
LENGTH: 1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 18.9% Matches 112; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: IKEDA, N
APPLICANT: OZAKI, I
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILE REFERENCE:
                    APPLICANT: Isaac, Barbara G. APPLICANT: Greenplate, John
                                                                                                                                                                                                                   478
                                                                                                                                                                                                                                                              709
                                                                                                                                                                                                                                                                                                         428
                                                                                                                                                                                                                                                                                                                                                                                          385
                                                                                                                                                                                                                                                                                                                                                                                                                                    865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              444 HSDLYSHYFGGLAETVLVVRSMSTL-------LNYDYVWDTVFHPSGA 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202 GLDIETRVRSELLEIGRKLNLPPLVTN-DCHYVLESQA--QAHEAMLCVQTGKTL----H 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  127 LSSMASYEGQL------GKW------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        271 YDSLAQLEAGFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRV 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         214 APRGLQSGDRATWFGLYY---NISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRY 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VFVPMAVPWSPEHQLORLQVTRKLLEMEEQAAFLVGSATPRYLYLAS---NHSN----KW 597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----QPGYQIADRV----IKELPPAIMAKDIPLSGITDPDHPRFNEAG
                                                                                                                                                                                                                                                         NFFDEDPSFYSADSIYFRGDQDAGACEVNPLAC---LPQAAACAPDLPAFSHGG
                                                                                                                                                                                                                                                                                                    IDIDEDDRRRGEMIRYAADRWGEDKIAQVITFGTVKTKQALKDSARVQMG----
                                                                                                                                                                                                                                                                                                                                                                                          GPGRGSAAGALVAYALTITNIDPMEHGLLFERF-------LNPERPSAPD
                                                                                                                                                                                                                                                                                                                                                                                                                                  GHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAP- 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDM 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEDRFK--FGGTGYYVKSAEQMRALWDDMVPDGCDNTLWIAERVQSYDEIWEE--HSHDR 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GFG----MGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRH 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADIIAEHAEGIIATTGCPSGDVQTRLRLGQFDEALEAAAMWQDIYGRDN---YFLELMDH 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALA---IYGGNSPAAMTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APESRFKKERVRWGEPHQKSDDVSGSGAYLHQT---MLAENTT------GLRNLF----Y 126
                                                                                                                                                                                                                                                                                                                                               -TVDFSDFINNETIA-----GKDLVAWV-TAGFLHIPHAEDIPNTVTVGNGVGFFLRPY 708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ------PEDYIERAEYEISVIDMK-------GYPSYFLIVAEIIKHARSIGIRV
Greenplate, John Purcell, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AKIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MASATO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.5%; Score 102; DB 18.9%; Pred. No. 8.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    71; Mismatches 207;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9; Length 1194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----- 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      204;
                                                                                                                                                                                                                   517
```

387

343

384

477

Gaps

29;

```
PRIOR APPLICATION NUMBER: 09/063,733
PRIOR FILING DATE: 1998-04-21
PRIOR FILING DATE: 1997-04-21
NUMBER: 60/044,504
PRIOR FILING DATE: 1997-04-21
NUMBER OF SEQ ID NOS: 58
SOFTWARE: Patentin version 3.1
SEQ ID NO 46
LENGTH: 617
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
FEATURE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-005-530-46
; ORGANISM: Aspergillus US-10-213-990-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 9
US-10-213-990-27
                               APPLICANT: Jiang, Bo
APPLICANT: Bussey, Howard
APPLICANT: Storms, Reg
APPLICANT: Storms, Reg
APPLICANT: Storms, Reg
APPLICANT: Nomer, Terry
TITLE OF INVENTION: NUCLEIC ACIDS OF ASPERGILLUS FUMIGATUS ENCODING INDUSTRIAL
TITLE OF INVENTION: ENZYMES AND METHODS OF USE
FILE REFERENCE: 10182-019-999
CURRENT APPLICATION NUMBER: US/10/213,990
CURRENT APPLICATION NUMBER: US/10/213,990
CURRENT FILING DATE: 2022-08-05
NUMBER OF SEQ ID NOS: 72
SOFTWARE: FAST-SEQ for Windows Version 4.0
SEQ ID NO 27
LENGTH: 944
TYPE: PRI
T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 27, Application US/10213990 Publication No. US20030082595A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: ROMANO, CHAILES P.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR CONTROLLING INSECTS
FILE REFERENCE: 11899,0022. DVUS01 (MOST:022--2)
CURRENT APPLICATION NUMBER: US/10/005,530
CURRENT FILING DATE: 2001-10-26
CURRENT FILING DATE: 2001-10-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    274 -----TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             110 LAHLDRGSP--PPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHG 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63 LSREELTAVMRELTQRLG--PGLVDAAQAR------PSDNCVFSVELQLPPKAAA 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
nes 81; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18 LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI-----KPAL 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENTP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GRLYTHHFTDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LAE----DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF-----FAIQWMETQN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DRATWFGLYYNISGAGFFLHHVGLELLVN-----HKALDPARWTIQKVFYQGRYYDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LKEAPRAEEELPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic Polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 101;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19;
```

```
Query Match
Best Local Similarity
Matches 122; Conserv
 Conservative
2.4%; Score 99; DB 20.2%; Pred. No. 11; tive 62; Mismatches
             DB 9;
 243;
                       Length 944;
 Indels
 176;
 Gaps
```

29;

```
FILE REFERENCE: 249-125
CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR FILING DATE: 1999-12-16
PRIOR FILING DATE: 2000-04-07
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 10
US-09-738-626-4914
                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 4914, Application US/09738626 Publication No. US20020197605A1
                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                             APPLICANT: YOKOI, HARUHIKO
APPLICANT: TATEISHI, NAOKO
APPLICANT: SENOH, AKIHIRO
APPLICANT: IKEDA, MASATO
APPLICANT: OZAKI, AKIO
TITLE OFF INVENTION: NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: NAKAGAWA, SATOSHI
APPLICANT: MIZOGUCHI, HIROSI
APPLICANT: ANDO, SEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAH----FKVDLDVAGLENWVWAEDM 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YNF 710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIR 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LDWKYIDSLPEISTEYNDEGW-----TPLTN-----TY-----TNNTREFTGP 712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LHLTGDVNVTTPLEVISAPKREDGIVFNGQSLKSTRSKIGNLAATVHYQPPAISLPDLKR 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFY---PQGPRFSVQGSRVASSLW----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RVLVLY--GGAG-ELHEFALPKHLPRPTVVEGSYV--KIAKQGSAWVVQWEVAAQRRVLR 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQ---FE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OYNLSISTSVGNVTIPOLGGSLSLNGRDSKFHITDYDVGGFNLIYSSAEVFTWAKGDNKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QEYLDIDQMIFNRELPQASGLL------HHCCFYKHRGRNLVTMTTAPRGLQSGDRAT 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YQF 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----IKEGLTGAGIGFYATSFSLDLPEGYDIPLSFRFNNSASAARSGTSYRCQLFVNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NLGGEQYQDLTRG--PLNEGAMYAER---QGYHL-----PSPPTSS-WKSSNP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSYFNQNDPWAPTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNH---SNKW---G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FANSVWLNQTFLGSWTGSGRNMTYPRNISLPHELSPGEPYVFTVVIDHMGQDEEAPGTDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----TFSFGLGAFSGPRIFD-VRFQGERLVYEISLQEALAIYGGNSPAA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGKLEIHLLWRNDAYQHWVLELPA----KQPIANYSSPSKETVIVKGGYLLRSAWITDND 614
                                                                                                                                                                                                                                                                                                                                     HAYASHI, MIKII
OCHIAI, KEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDA
                                                                                                                                                                                                                                                                                                                                                          MIKIRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------RGILD-------YALSGHELSDLRWKMTG
                                                                                                                                                                                                                                                                                                                                                                                                 HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----YHGG----SLIYRGHFT-ANGDESW-VFLNTSGG--VG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                503
```

```
RESULT 11
US-10-005-530-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; SEQ ID NO 4914
; LENGTH: 581
; TYPE: PRT
; ORGANISM: Corynebacterium glutamicum
US-09-738-626-4914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                 SOFTWARE: PatentIn version 3.1
SEQ ID NO 57
LENGTH: 617
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 57, Application US/10005530 Publication No. US20030026795A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 2.3%; Score 95.5; I Best Local Similarity 22.8%; Pred. No. 11; Matches 115; Conservative 50; Mismatches
                                                                                                                                                                                                                                                          APPLICANT: Greenplate, John T.
APPLICANT: Purcell, John T.
APPLICANT: Romano, Charles P.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR CONTROLLING INSECTS
FILE REFERENCE: 11899.0022.DVUS01 (MOBT:022--2)
CURRENT APPLICATION NUMBER: US/10/005,530
CURRENT FILLING DATE: 2001-10-26
PRIOR APPLICATION NUMBER: 09/063,733
PRIOR FILLING DATE: 1998-04-21
PRIOR FILLING DATE: 1998-04-21
                                                                                                                                                                                         PRIOR APPLICATION NUMBER: 60/044,504 PRIOR FILING DATE: 1997-04-21 NUMBER OF SEQ ID NOS: 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Isaac, Barbara
APPLICANT: Greenplate, Jo
OTHER INFORMATION: Synthetic Polypeptide NAME/KEY: MISC_FEATURE
                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       164 TITKVIHDDGTEEGLAQLTALQFETKQVDTVEDLVRETASLTPEDQTLLAPAWGGVAPTP 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  539 LREGLSPNYFMAWKNFYDEDFPTF 562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               695 VTVGNGVGFFLRPYNFFDED-PSF 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  521 THSAHFKVDLDV-AGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKL-----LEMEEQ 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        355 QGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWH 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    260 TIQKVFYQGRYYDSLAQLEA-QFEAGLVNVV------LIPDNGT--GGSWSLKSPVP 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             277 NOEQMKMVAGLADRPLLALGDQ-----FGTG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYGNQVS-EHTLGTVH--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FLLESQAPKTIRDAFCVFEQNQG----LPLRRHHSDLYSH----YFGGLAE---TVLVVR 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SDDKLAAFPLQSKRDGEMSPIV---IASP----ESGISAVATARAFGAEIRFMDYPDPRF 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PG---PAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIF-------DVRF 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LTNRDQ-----INTDHLELAVVLHADGHGN---AGDKYATW-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TORKEEEPSSSSVFNONDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNT 694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PMTRVGSADAAEI - - - - NEVSQW----- LADLT - AENDLPQ - - - - - KAFVLHQFQLEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAV 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---EQLAEKIKRGEEVTTELPGGGGLVFPGRRMVA-LYGHPSGPALGALGEQPAAEAVAR 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TEAGGYAV-LDLQPGRANFLDQAKMY------EELLKRPNVGLALDPEWKIGPDEQ 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATDMAAQYQEFEDQPVIPA-----FEVIATVASEFA-GDDGNYSNEFPVEDLVGYVDAI 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      188; Indels 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 581;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---- 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NM 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               520
```

```
CURRENT APPLICATION NUMBER: US/09/912,020
CURRENT FILING DATE: 2001-07-23
PRIOR APPLICATION NUMBER: 09/492,709
PRIOR FILING DATE: 2000-01-27
PRIOR APPLICATION NUMBER: 60/117,405
PRIOR FILING DATE: 1999-01-27
NUMBER OF SEQ ID NOS: 485
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 364
LENGTH: 878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : LOCATION: (74)..(79)
: OTHER INFORMATION: Xaa - Unknown
US-10-005-530-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 12
US-09-912-020-364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                      ş
                                                            밁
                                                                                              S
                                                                                                                                                                                                                  US-09-912-020-364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 364, Application US/09912020 Patent No. US20020045592A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                    Matches
                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: GENES IDENTIFIED AS REQUIRED FOR PROLIFERATION TITLE OF INVENTION: ESCHERICHIA COLI FILE REFERENCE: ELITRA.001DV1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Zyskind, Judith APPLICANT: Ohlsen, Kari L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                  TYPE: PRT
ORGANISM: E.
                                                            148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         336 TFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS 376
213 -- TAPRGLQSG-------DRATWFGLYYN----ISGAGFFLHHVGLELLVNHKALDP- 256
                                                                                              176 YLDIDOMIFNRELPOA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               224 ATWFGLYYNISGAGFFLHHVGLELLVN------HKALDPARWTIQKVFYQGRYYDSLA 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126 LYTHHFTDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDGEN 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       164 LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  110 LAHLDRGSPPPAREALAIVFFGROPOPNVSELVVG-----PLPHPSYMRDVTVERHGGP 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  / Match 2.3%;
Local Similarity 22.5%;
nes 78; Conservative 4
                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18 LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI----GGGSGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63 LSREELTAVMRFLTQRLG--PGLVDAAQAR-----PSDNCVFSVELQLPPKAAA 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLW 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              XXXXXXGGGPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTGGR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E---DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF-----FAIQWMETQN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEKLA 227
                                                          HLDVGQQRLNLTIPQAFMSNRARGYIPPELWDPGINAGLLN----YNFSGNSVQNRIGGN 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION:
                                                                                                                                      108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Trawick, John
Forsyth, R. Allyn
Froelich, Jamie M.
Carr, Grant J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Yamamoto, Robert T.
                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS
                                                                                                                                                        2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40;
                                                                                                                                    61; Mismatches 190;
                                                                                                                                                        Score 93.5;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 95; DB
Pred. No. 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                          30;
                                                                                              --SGLLHHCCFYKHRGRNLVTMT--- 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 9; Length 617
                                                                                                                                                                          DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                      Indels
                                                                                                                                                                          Length 878;
                                                                                                                                    175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66;
                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18;
                                                                                                                                      27;
```

```
밁
                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
RESULT 13
US-09-734-569-172
                                                                                                                                                                                                                                                                                                                                                             390 GMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS
                                                                                                                                                                                                                                                                                                                                                                                                     371 EGHTRYSITAGEYRSGNAQQEKTRFFQSTLLH--GLPAGWTIYGGTQ----LADRYRAFNF
                                                                                                                                                                                                                                                                                                                                                                                                                                            330 VASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    311 VTIKQNGYDIYNSTVPPGPFTINDIYAAGNSGDLQVTIKEADGSTQIFTVPYSSVPLLQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   258 RSRLTLGDGYTQGDIFDGINFRGAQLASDDN-----MLPDSQRGFAPVIHGIARGTAQ 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                204 SHYAYLNLQSGLNIGAWRLRDNTTW---SYNSSDRSSGSKNKWQHINTWL---ERDIIPL
                                                                                 ----INWTLSYSL----TKNAWQKGRDQMLALNVNIPFSHWLRSDSKSQWRH 616
                                                                                                                                                         YNKRGKLOLTVTOO-LGRTSTLYLSGSHQTYWGTSNVDEQFQABLNTA-----FED--
                                                                                                                                                                                                                                             KSLNESGTNIQLVGYRYSTSGYFNFADTTYSRMNGYNIETQDGVIQVKPKFTDYYNLA--
                                                                                                                                                                                                                                                                                HYFGGLAETVLVVRSMSTLLNYDYVWDTVFH-----PSGAIEIRFYATGYISSAFL
                                                                                                                                                                                                                                                                                                                          GIGKNMGALG-----ALSVDM-----TQANSTLPDD----SQHDGQSVR----FLYN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -ARWTIQKVFYQGRYYDSL----AQLEAQFEAGLVNVVLIPDNGTG--
                                                                                                                      FVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGH 599
                                                                                                                                                                                                     FGATGKYGNQVSEHTLG---TVHTHSAH-----
                                                                                                                                                                                                     -FKVDLDVAGLENWVWAEDMV
                                                                                                                                                                                                                                                                                    500
                                                                                                                                                                                                                                                                                                                          464
                                                                                                                                                                                                                                                                                                                                                                 449
                                                                                                                                                                                                                                                                                                                                                                                                                                            389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  257
                                                                                                                                                                                                         545
                                                                                                                                                                                                                                               522
                                                                                                                                                                                                                                                                                                                                                                                                         425
                                                                                                                                                                    572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            297
```

```
В
                               δÃ
                                                                                                                                           ; LENGTH: 480
TYPE: PRT
CORGANISM: Physcomitrella patens
US-09-734-569-172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 172, Application US/09734569 Patent No. US20020064816A1
                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 181
SOFTWARE: PatentIn Ver. 2
SEQ ID NO 172
                                                                                         Query Match
Best Local (
                                                                        Matches
                                                                                                                                                                                                                                                                   TITLE OF INVENTION: Moss genes from Physcomitrella patens encoding proteins invocation of Invention: in the synthesis of carbohydrates file Reference: BASF-NAE-1332-99-US CURRENT APPLICATION NUMBER: US/09/734,569 CURRENT FILING DATE: 2001-05-24 PRIOR APPLICATION NUMBER: US 60/171,101 PRIOR FILING DATE: 1999-12-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
 168 LNQLFICVGILLALIAGLPLGSNPVWWRTMFALATVPAVLLGLG------MAYCPE-S 218
                                                                        Local Similarity nes 91; Conserv
                                   1 MNQKTILVLLILAVI------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                               Freund, Annette
Duwenig, Elke
Schmidt, Ralf-Michael
Reski, Ralf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Frank, Markus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Reindl, Andreas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Renz, Andreas
Ehrhardt, Thomas
                                                                      2.3%;
ilarity 22.9%;
Conservative !
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ischoff, Friedrich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           irpus, Petra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Jens
                                                                                                                                                                                                                                     2.1/WordPerfect 6
                                                                    ; Score 93; DB
; Pred. No. 13;
55; Mismatches
                                   -----TIFALVCV--LLVGRGGDGGEPSOLPHCPSVS 45
                                                                                                          10;
                                                                        124;
                                                                                                        Length 480
                                                                        Indels 128;
                                                                        Gaps
                                                                          22
```

Ş

PSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPP 105

WLYKNGK-----TAEAETAVRRL----WGKAKVESSMADLKASSVETVK----

HCGOSQLFADLSRE 	31 DGGEP 218 DTGTE	P S
2.3%; Score 93; DB 10; Length 601; larity 22.3%; Pred. No. 19; Conservative 32; Mismatches 112; Indels 128; Gaps	Query Match Best Local Simi Matches 78;	
(ION: Xaa equals any of the naturally occurring L-amino	LOC 0TH -09-9	us;
a) PION: Xaa equals any of the naturally occurring L-amino	LOCATION: (358) OTHER INFORMATION: NAME/KEY: SITE	
2) TION: Xaa equals any of the naturally occurring L-amino	LOCATION: (152) OTHER INFORMATION NAME/KEY: SITE	
5) TION: Xaa equals any of the naturally occurring L-amino	LOCATION: (106) OTHER INFORMATION: NAME/KEY: SITE	
3) FION: Xaa equals any of the naturally occurring L-amino a	LOCATION: (103) OTHER INFORMATION NAME/KEY: SITE	
) PION: Xaa equals any of the naturally occurring L-amino a	LOCATION: (64) OTHER INFORMATION: NAME/KEY: SITE	
E TION: X\$a equals any of the naturally occurring L-amino a E	NAME/KEY: SITE LOCATION: (36) OTHER INFORMATION: NAME/KEY: SITE	
sapiens	:=	٠. ٠.
	TYPE: PF	·· ·· ·
TD NOS: 1694 NEIN Ver. 2.0	NUMBER OF SEQ ID N SOFTWARE: Patentin SEO ID NO 844	
TON NUMBER: 60/124,270	PRIOR FILING DATE: PRIOR APPLICATION N	
TION NUMBER: US/09/ DATE: 2001-08-10	CURRENT APPLIC	
in et al. 1910: Nucleic Acids, Proteins and Antibodies : PA106	TITLE OF INVENTION: FILE REFERENCE: PA1	
120052308A1	NI N	
-844 14, Application US/0925301	SULT 14 -09-925-301 Sequence 84	RE US
NEMIGLEELNVVOKEGVSTVYLEESAVCAAATAYVGGN 460	423	B
FGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGN 375	338 S	δÃ
	379 -GTVSYIL-	멍
PDNGTGGSWSLK	283	δ
LYYNISGAGFFLHHVGLELLVNHKALDPARWTIOKVFYOGRYYDSLAQLEAQFE 282	223 RATWFG :: 342 KSLLMG	B 64
LFQQFAGINAVVYFSTQVFRSAGITNDVAASALVGAANVAGTTVASGMMDKQGR 341	287	В
IDQMI-F	166 YHRR	QΥ
	261	밁
KAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLP 165	106	δ

```
Š
                                               뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 15
US-08-954-701A-19
                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 02103

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

COMPUTER: IBM PC-DOS/MS-DOS

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: ASCII(text)
                                                                                                                            Query Match 2.3%; Score 93; DB 1; Length 1447; Best Local Similarity 25.5%; Pred. No. 71; Matches 49; Conservative 28; Mismatches 67; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 19, Application US/08954701A Publication No. US20030032085A1
                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08,
FILING DATE: 20-OCT-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: VICTORY STATESTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                  LENGTH: 1447 amino aci
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
                                          1156 LAILTILGVLNGLVLLPVLLSFFGPYPEVSPANGLNRLPTPSPEPPPSVVRFAMPPGHTH 1215
                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: SU
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617-832-1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: GOODRICH, LISA V
APPLICANT: JOHNSON, RONALD L
TITLE OF INVENTION: Patched Genes and their Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDAL.
STREET: U.
STREET: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         457 GSAGPSSSQISGGAMDSQLHPNSGGFRPGTPSLHPYRSQPLYLPPGPAPP 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               438 HCVPEPSSSGQR-----LYPEVFY 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                384 DKDSDLRLVVGDSLKAEKELTASVTEAIPVSRDWELLPSAAASA-----EPQSKNLDSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           174 QEYLDI-----DQMIFNRE------LPQASGLLHHCCFYKHRGRNLVTM 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122 REALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVER--HGGPL-PYHR--RPVLF--- 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          278 QVS-SGPCSQRSSPDGGLKGAAEGPPKRPGGSSPLNAVPCEGPP-----GSEPPR 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        212 TTAPRGLOSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYY 271
54 PGQSQLFADLSREE----LTAYMRFLTQRLGPG-----LYDAAQARPSDNCVFSVELQL 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Vincent, Matthew P. REGISTRATION NUMBER: 3670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68 LTAVMRFLTQRLGP--GLVDAAQARP----SDNCVFSVELQLPPKAAALAHLDRGSPPPA 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: US
ZIP: 02109
                                                                               6 ILVLLILAVITIFALVCVLL--VGRGGDGGEPSQLPHCPSVSPSAQP------WTH 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DSLAQLEAQFEAGLVNVVLIPDNG--TGGSWSL----KSP--VPPGPAPP 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RPPPAPHDGDRKELPREQPLPPGPI----GTERSQXTDRGTEPGPIRPSHRPGPPVQFGTX 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E: Foley, Hoag & Eliot
One Post Office Square
                                                                                                                                                                                                                                                                                                                        1447 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SCOTT, MATHEW P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/08/954,701A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36709
                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUV-003.08
                                                                                                                            48; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   437
                                                                                                                              10;
```

•					
Sear Job	문	Qy	Дb	Qy	В
ch con time	1322	155	1271	104	1216
Search completed: May 20, 2003, 12:02:20 Job time : 127.567 secs	1322 AFEISTEGHSGP 1333	155 VTVERHGGP 163	1271 HPESRHHPPSNPRQQPHLDSGSLPPGRQGQQPRRDPPREGLWPPLYRPRRD 1321	А	1216 SGSDSSDSEYSSQTTVSGLSEELRHYEAQQGAGGPAHQVIVEATENPVFAHSTVV 1270

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                              Database
                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein -
                                                                                                                                                                                                                                          ö
 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                            BB BB
                                                                                                                                                                                                  4095
3334
1400.5
1394
Score
                                                                                                                                                                                                                                                                                                                                                                                           seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                           length: 0
length: 2000000000
                                                                                                                                                                                                                                         Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-081-408-2
4095
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MNQKTILVLLILAVITIFAL.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       May 20, 2003, 11:09:54; Search time 29.4394 Seconds (without alignments) 2491.578 Million cell upd
                                                                                                                                                                                                                                                                                                                                                                                                                                  283224 seqs, 96134422 residues
PIR_73:*
                                                                                                                                                                                                                                                                                                                                                          Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Copyright
                                                                                                                                                                                                                                                                                                              pir1: *
pir2: *
pir3: *
pir4: *
                                                                                                                                                                                                                                          Length
GenCore version (c) 1993 - 2003
                                                                                                                                                                                                                                          ДB
                                                                                                   C44239
E84854
                                                                                                                   JC7251
T47403
                                                                                                                                                                   B41836
E64889
A56102
G90330
                                                                                                                                                                                                                                          Ħ
                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .QAAACAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                                   283224
                                                                                                                                                                                         amine
amine
                             hypothetical prote copper amine oxida subtilisin-type pr
                                                                    probable peroxisom copper amine oxida
                                                                                                                                                          amine oxidase amine oxidase
                                                                                                                                                                          amine oxidase
              phosphoribosylform choline kinase (EC
                                                     amine oxidase (cop
                                                                                           probable copper
copper amine oxi
                                                                                                          amine oxidase (cop
                                                                                                                    amine
                                                                                                                            amine
                                                                                                                                                                                                                amine oxidase
                                                                                                                                   phenylethylamine o
                                                                                                                                           probable amine oxi
                                                                                                                                                                                                          amine
                                                                                                                                                                                                                                         Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cell updates/sec
                                                                                                                                                                                         oxidase
oxidase
                                                                                     oxidase
                                                                                                                   oxidase (cop
oxidase-like
                                                                                                                                                                                                          oxidase
                                                                                                                                                    amine
                                                                                                                                                 oxida
                                                                                           oxida
                                                                                                                                                                                 (cop
                                                                                                                                                                                         (cop
                                                                                    (cop
                                                                                                                                                           (cop
                                                                                                                                                                          (cop
                                                                                                                                                                 (cop
                                                                                                                                                                                                                                                                                                                     C:Accession: JC5234
R:Zhang, X.; McIntire, W.S.
Gene 179, 279-286, 1996
A:Title: Cloning and sequencing of a copper-containing, A:Reference number: JC5234; MUID:97128319; PMID:8972912
A:Contents: placenta
A:Accession: JC5234
             Ş
                             밁
                                           δÃ
                                                            밁
                                                                        Ωy
                                                                                           ₽
                                                                                                         δÃ
                                                                                                                          В
                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                             A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                          C;Species: Homo sapiens (man)
C;Date: 13-Mar-1997 #sequence_revision 13-Mar-1997 #text_change 18-Feb-2000
                                                                                                                                                                                                                                                                                                                                                                                         amine oxidase (copper-containing) (EC 1.4.3.6) AOC2 precursor -
                                                                                                                                                                                                                                                                                                                                                                                   Species:
```

ALIGNMENTS

topa quinone-containing

m on

A;Gene: GDB:AOC2; DAO2
A;Gene: GDB:AOC2; DAO2
A;Gene: GDB:AOC2; DAO2
A;Gene: GDB:AOC2; DAO2
A;Map position: 17q21-17q21
C;Superfamily: amiloride-binding protein
C;Keywords: copper; metalloprotein; oxidoreductase; quinoprotein; topaquinor
F;1-19/Domain: signal sequence *status predicted <SIG>
F;20-763/Product: amine oxidase (copper containing) *status predicted
F;444,520,522/Binding site: copper (His) *status predicted
F;471/Modified site: topaquinone (Tyr) *status predicted A; Molecule type: mRNA A; Residues: 1-763 < ZNALA A; Residues: 1-763 * ZNALA A; Cross-references: GB:U39447; NID:gl399031; PIDN:AAC50919.1; PID:gl399032 C; Comment: This enzyme catalyzes the oxidation of primary amines to the correspondi Cu(II) and 1 molecule of covalently-bound topa quinone. It also can scavenge circu C; Genetics: Query Match 241 HHYGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW 61 Local QMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL HHVGLELLVNHKALDPARWT IQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW QMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL ADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPP Similarity Conservative 100.0%; Score 4095; DB 2; 100.0%; Pred. No. 1.5e-316; Live 0; Mismatches 0; se; quinoprotein; topaquinone <SIG> Length 763; Indels 0 Gaps 240 180 180 120 240 120 60 0

```
A;Status: preliminary
A;Molecule type: protein
A;Residues: 468-472 <JAN>
A;Residues: 468-472 <JAN>
A;Residues: 468-472 <JAN>
A;Residues: 468-472 <JAN-
Bide Biase, D; Agostinelli, E; de
Eur. J. Biochem, 237, 93-99, 1996
A;Title: Half-of-the-sites reactivil
A;Reference number: S65408; MUID:96;
A;Accession: S65408
A;Accession: S65408
A;Accession: S65408
C;Superfamily: amiloride-binding proc;Superfamily: amiloride-binding proc;Keywords: copper; glycoprotein; oz
F;1-16/Domain: signal sequence #stat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amine oxidase (copper-containing) (EC 1.4.3.6), serum, pr C;Species: Bos primigenius taurus (cattle) C;Date: 09-Sep-1994 #sequence_revision 06-Feb-1995 #text_C;Accession: A54411; B38081; A48242; S65408 R;Mu, D.; Medzihradszky, K.F.; Adams, G.W.; Mayer, P.; H1 J. Biol. Chem. 269, 9926-9932, 1994 A;Title: Primary structures for a mammalian cellular and A;Reference number: A54411; MUID:94193886; PMID:8144587 A;Accession: A54411
                                                                                                                                                                                                                                               R:Janes, S.M.; Mu, D.; Wemmer, D.; Smith, A. Science 248, 981-987, 1990
A;Title: A new redox cofactor in eukaryotic A;Reference number: A48242; MUID:90260648; F. A;Accession: A48242
                                                                                                                                                                                                                                                                                                                                                                          A:Cross-references: GB:S69583; NID:g546215; PIDN:AAB30397.1; P1 R;Mu, D.; Janes, S.M.; Smith, A.J.; Brown, D.E.; Dooley, D.M.; J. Biol. Chem. 267, 7979-7982, 1992
A:Title: Tyrosine codon corresponds to topa quinone at the actial R:Reference number: A38081; MUID:92235001; PMID:1569055
A:Accession: B38081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-762 < MUA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                      A; Molecule type: protein A; Residues: 463-465, 'D',
;Molecule type: protein
;Residues: 463 469, 7 471-487 <DEB>
;Superfamily: amiloride-binding protein
;Superfamily: amiloride-binding protein
;Keywords: copper; glycoprotein; oxidoreductase;
;Keywords: copper; glycoprotein; oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DSIYFRGDQDAGACEVNPLACLPQAAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YEISLQEALAIYGGNSPAAMTTRYYDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ
                                                                                                                                                                                                                                                                                                                   'D',467-473,'X',475-485
                                                                                                                   reactivity of bovine; MUID:96203913; PMID:
                                                                                                                                                                          de Matteis,
                                                                                                                                                                                                                                                                                                                   85 <MU2>
A.J.; Kaur,
                                                                                                                                                                                                                                                                  c enzymes: 6-hydroxydopa
PMID:2111581
                                                                                                                                                                          ດ
:
                                                                                                                     ):8620899
                                                                                                                                                                          Mondovi,
         quinoprotein; <SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #text_change
                                                                                                                                                                                                                                                                                                                       s . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                763
                                                                                                                                      amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hines,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   precursor -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            serum
                                                                                                                                                                          B.,
                                                                                                                                                                                                                                                                                                                     Maltby,
                                                                                                                                                                                                                                                                                                                                                                                                              active
                                                                                                                                      oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                              PID:g546216
.; Klinman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           W.M.; Burlingame,
                                                                                                                                                                       Morpurgo,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         copper amine
                        topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-Feb-2000
                                                                                                                                                                                                                                                                                                                     Ö.;
                                                                                                                                                                                                                                                                                                                                                                                                              site
                                                                                                                                                                                                                                                                                   at the
                                                                                                                                    Reactivity
                                                                                                                                                                                                                                                                                                                   Burlingame,
                                                                                                                                                                                                                                                                                                                                                                                                            of copper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                J.P.
                                                                                                                                                                                                                                                                                   active
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         oxidase
                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A.L.;
                                                                                                                                                                                                                                                                                   site
                                                                                                                                                                                                                                                                                                                                                                                                              amine
                                                                                                                                                                                                                                                                                                                     A.L.;
                                                                                                                                      chem
                                                                                                                                                                                                                                                                                     0
```

```
amine oxidase (copper-containing) (EC 1.4.3.6), kidney, precurso: N;Alternate names: amiloride-binding protein, long form N;Contains: amiloride-binding protein, short form C:Species: Rattus norvegicus (Norway rat) -Jan-1995 #text_change C;Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change C;Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change C;Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change C;Date: 13-Jan-1995 #sequence_revision N;Gate: No.; Waldmann, R.; Chassan, R;Lingueglia, E.; Renard, S.; Voilley, N.; Waldmann, R.; Chassan, Bur. J. Biochem. 216, 679-687, 1993 A;Title: Molecular cloning and functional expression of different A;Reference number: S36847; MUID:93387321; PMID:8375402
                                                                                                                                          RESULT
S34656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F;17-762/Product: amine oxidase (copper-containing) *status predicted <MAT>F;136,231,665/Binding site: carbohydrate (Asn) (covalent) *status predicted F;470/Modified site: topaquinone (Tyr) *status experimental
                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                     723
                                                                                                                                                                                                                               724
                                                                                                                                                                                                                                                         663
                                                                                                                                                                                                                                                                                    664
                                                                                                                                                                                                                                                                                                                603
                                                                                                                                                                                                                                                                                                                                          604
                                                                                                                                                                                                                                                                                                                                                                      543
                                                                                                                                                                                                                                                                                                                                                                                                 544
                                                                                                                                                                                                                                                                                                                                                                                                                             483
                                                                                                                                                                                                                                                                                                                                                                                                                                                         484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14 VITIFALVCVLLVGR--GGDGGE-----PSQLPHCPSVSPSAQPWTHPGQSQLFADL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     w
                                                                                                                                                                                                                                                                                                                                                                                     WVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YFRGDQDAGACEVNPLACLPQAAAACAPDLPAFSHGGF
                                                                                                                                                                                                                                                        INNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSI
                                                                                                                                                                                                                                                                                                                RIQTVSFAGGPMPQNSPMERAFSWGRYQLAITQRKETEPSSSSVFNQNDPWTPTVDFSDF
                                                                                                                                                                                                                                                                                                                             RIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDF
                                                                                                                                                                                                                                                                                                                                                                                                                                             AIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SREELTTVMSFLTQQLGPDLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IF IFLSLWTLLVMGREEGGVGSEEGVGKQCHPSLPPRCPSRSPSDQPWTHPDQSQLFADL
                                                                                                                                                                                                    YFREGQDAGSCEINPLACLPQAATCAPDLPVFSHGGY
                                                                                                                                                                                                                                                                                                                                                                      MAFVPTAIPWSPEHQIQRLQVTRKQLETEEQAAFPLGGASPRYLYLASKQSNKWGHPRGY
                                                                                                                                                                                                                                                                                                                                                                                                                             AIEVKLHATGY ISSAFLFGAARRYGNQVGEHTLGPVHTHSAHYKVDLDVGGLENWVWAED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FNRELPQAAGVLHHCCSYKQGGQKLLTMNSAPRGVQSGDRSTWFGIYYNITKGGPYLHPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      81.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 3334;
Pred. No. 3.
                                                                                                             (EC 1.4.3.6), kiu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          es 76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB
                                                                                                                                                                                                    759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2
                                            R.; Chassande,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                             precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10;
                                                                        18-Feb-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              predicted
                                            O.; Lazdunski,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                  723
                                                                                                                                                                                                                                                                                                                                                                                                                                                      543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63
                                                                                                                                                                                                                                                                                                                662
                                                                                                                                                                                                                                                                                                                                         663
                                                                                                                                                                                                                                                                                                                                                                     602
                                                                                                                                                                                                                                                                                                                                                                                                 603
                                                                                                                                                                                                                                                                                                                                                                                                                             542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2
```

different

molecular

forms

of.

```
R; Verity, K.; Fuller, P.J.

Am. J. Physiol. 266, C1505-C1512, 1994

A; Title: Isolation of a rat amiloride-binding protein cDNA clone: tissue distribution A; Reference number: I51904; MUID:94295632; PMID:8023885

A; Accession: I51904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: mRNA
A; Molecule type: mRNA
A; Residues: 529-746 <LIN2>
A; Cross-references: EMBL: X73912; NID: g395066; PIDN: CAA52117.1;
A; Cross-references: EMBL: X7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A:Molecule type: mRNA
A:Residues: 530-586, 'T', 588-632 <VER>
A:Cross-references: GB:S70383; NID:9547214; PIDN:AAB31157.1; PID:9547215
A:Note: in Genbank entry S70383, release 116.0, the source is designated
C:Superfamily: amiloride-binding protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Keywords: alternative initiators; oxidoreductase F;1-746/Product: amine oxidase (copper-containing), kidney, precursor #status pr F;529-746/Product: amiloride-binding protein short form #status predicted <SHRT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Accession: S36:
A; Molecule type:
A; Residues: 1-74
                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                      밁
                                                                                                                                      õ
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Cross-references:
   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                             533
                                                                                                                                                                                                                                                                                                                                             458
                                                                                                                                                                                                                                                                                                                                                                                                                473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              տ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQ 77
                                                                                                                                                                                                                                                                                                                                                                                                         YVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YYDSDGPVHYPHALCLFEMPTGVPLRRHFNSNFKGGFNFYAGLKGYVLVLRTTSTVYNYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GERVAYEVSVQEAVALYGGHTPAGMQTKYIDVGWGLGSVTHELAPGIDCPETATFLDAFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPD---NGTGGSWSLKSPV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VTEFAVGPLPRPYYIRALS-PRPGHHLSWSSRPISTAEY----DLLYH-TLKRATMPLHQ 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REELGLQPSKEPTLAKNSVFLIEMLLPKKKHYLKFLDEGRKGPNREARAVIFFGAQDYPN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FGWAAVILVLQTVDTASAVRTPY----
PWAPTVDFSDFI-NNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFF
                                                                      QKNCWGHRRSYRLQIHSMAEQVLPPGWQEERAVTWARYPLAVTKYRESERYSSSLYNQND
                                                                                                                                      HSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQND
                                                                                                                                                                                                                                                                      AGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASN
                                                                                                                                                                                                                                                                                                                                         YIWDFIFYSNGVMEAKMHATGYVHATFYTPEGLRHGTRLQTHLLGNIHTHLVHYRVDMDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS---HYFGGLAETVLVVRSMSTLLNYD 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSYKPRGEFHTPVNVAGPHVVQPSGPRYKLEGNTVLYGGWSFSYRLRSSSGLQIFNVLFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FFLDTTGFSFLGCDDRCLTFTDVAPRGVASGQRRSWFIVQRYVE--GYFLHPTGLEILLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----CCFYKHRGRNLVTMTTAPRGLOSGDRATWFGLYYNISGAGFFLHHVGLELLVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPN 137
                                                                                                                                                                                                      AGTKNSFQTLTMKLENLTNPWSPSHSLVQPTLEQTQYSQEHQAAFRFGQTLPKYLLFSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----PPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HGSTDVQDWRVEQLWYNGKFYNNPEELARKYAVGEVDTVVLEDPLPNGTE-----KPPLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1-746 <LIN1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL: x73911; NID: g395064; PIDN: CAA52116.1; PID: g395065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1400.5; DB 2
Pred. No. 9.1e-103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --- DKARVFADLSPQEIKAVHSFLMN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                          577
                                                                                                                                                                                                                                                                                                                                                                                                             532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50
                                                                      637
                                                                                                                                                                                                                                                                                                                                         517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sp.
```

```
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Nolecule type: mRNA
A;Residues: 1-331, 'F',333-751 <RES>
A;Residues: 1-331, 'F',333-751 <RES>
A;Cross-references: EMBL:U11862; NID:g533535; PIDN:AAC50270.1; PID:g533536
A;Cross-references: EMBL:U11862; NID:g533535; PIDN:AAC50270.1; PID:g533536
R;Barbry, P.; Champe, M.; Chassande, O.; Munemitsu, S.; Champigny, G.; Ling
Proc. Natl. Acad. Sci. U.S.A. 87, 7347-7351, 1990
A;Title: Human kidney amiloride-binding protein: CDNA structure and functional Reference number: A38276; MUID:91017502; PMID:2217167
A;Accession: A38276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Accession: A54053; A54410; I38708; A38276; S42495
R;Chassande, O.; Renard, S.; Barbry, P.; Lazdunski, M.
J. Biol. Chem. 269, 14484-14489, 1994
A;Title: The human gene for diamine oxidase, an amiloride
A;Reference number: A54053; MUID:94237856; PMID:8182053
A;Accession: A54053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Note: sequence extracted from NCBI backbone (NCBIP:146046) R; Zhang, X.; Kim, J.; McIntire, W.S. Biochem. Genet. 33, 261-268, 1995
A; Title: CDNA sequences of variant forms of human placenta da; Reference number: I38708; MUID:96113540; PMID:8595053
A; Accession: I38708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R:Novotny, W.F.; Chassande, O.; Baker, M.; Lazdunski, M.; Barbry, P. J. Biol. Chem. 269, 9921-9925, 1994
A;Title: Diamine oxidase is the amiloride-binding protein and is inhibited A;Reference number: A54410; MUID:94193685; PMID:8144586
A;Accession: A54410
                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: GDB:127105;
A;Map position: 7q31-7q32
A;Introns: 524/1; 619/2; 663/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Molecule type: mRNA
A;Residues: 1-265,'RCLGARGMTAQRSRPSSPPQAPRDFPQPHPCERPPLGPAPRPSLQAGGQRCALRRLELCLPV',
A;Cross-references: GB:M55602; GB:M36335; NID:g387655; PIDN:AAA58358.1; PID:g177960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: protein
A; Residues: 20-27, 'A', 29-39 <NOV>
A; Cross references: PIDN: AAB30395.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: EMBL:X78212; NID:g463242; PIDN:CAA55046.1; PID:g463243
R;Novotny, W.F.; Chassande, O.; Baker, M.; Lazdunski, M.; Barbry, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-751 < CHA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C:Species: Homo sapiens (man)
C:Date: 07-Jul-1995 #sequence_revision 07-Jul-1995 #text_change 18-Feb-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amine oxidase (copper-containing) (EC 1.4.3.6) ABP1 precursor - N;Alternate names: amiloride-binding protein; diamine oxidase; h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
               Ş
                                                                                                                                                                                       C;Keywords: homodimer; oxidoreductase; quinoprotein; t F;1-19/Domain: signal sequence #status predicted <SIG> F;461/Modified site: topaquinone (Tyr) #status predict
                                                                                                                                                                                                                                                                            A;Description: oxidation of putrescine and histamine C;Superfamily: amiloride-binding protein
                                                                                                                                                                                                                                                                                                                                     C; Function:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C; Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Experimental source: placenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Gene: GDB: ABP1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: preliminary; translated from
                                                                              Matches
                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           698 PEDPSLASRDTVIV-WPQDKGLNRVQ--RWIPEDRRCLVS-PPFSYNG
                                                                                 Local Sin
                     50
PWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAA 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PWDPPVVFEEFLRNNENIEDEDLVAWVTVGFLHIPHSEDVPNTATPGNSVGFLLRPFNFF
                                                                              Conservative
                                                                                                      34.0%;
                                                                           124;
                                                                                                                                                                                                                                                                                                                                                                                                                                OMIM: 104610
                                                                        Score 1394; DB 1
Pred. No. 3e-102;
4; Mismatches 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PID:g546213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GB/EMBL/DDBJ
                                                                                                                                    DB 2;
                                                                                                                                                                                       predicted
                                                                                 281;
                                                                                                                                                                                                                                                 topaquinone
                                                                                                                                 Length 751;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        oxidase; histaminase
                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     diamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              741
                                                                                 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     functional expr
                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lingueglia,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Molecula
                                                                                 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          amilo
```

δõ 밁

110

LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRR PGTLPRKAGVFSDLSNQELKAVHSFLWSKKELRLQPSSTTTMAKNTVFLIEMLLPKKYHV 82

169

```
οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-755 <SUG>
A; Cross-references: GB:D10208; NID:g216721; PIDN:BAA01060.1; PID:d1001529;
C; Superfamily: amine oxidase (copper-containing)
C; Keywords: oxidoreductase
                                                                                                                                                                                                                                               amine oxidase (flavin-containing) (EC 1.4.3.4) precursor - Klebsiella (Species: Klebsiella pneumoniae (C; Species: Klebsiella pneumoniae (C; Date: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change 02-Sep C; Accession: B41836 R; Sugino, H.; Sasaki, M.; Azakami, H.; Yamashita, M.; Murooka, Y. J. Bacteriol. 174, 2485-2492, 1992 A; Title: A monoamine-regulated Klebsiella aerogenes operon containing A; Reference number: A41836; MUID:92210491; PMID:1556068 A; Accession: B41836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
B41836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
     밁
                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                    Query Match
Best Local S
Matches 150
                                                                                                                                                                                                                                  Status: preliminary
                                                                                                                                                                                                                                                                                                                                                           Date: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change 02-Sep-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             170
     237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EDRDCSMP-PPFSYNG 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GRYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPWAVPWSPEHQLQRLQV 564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RRSWLIIQRYVE--GYFLHPTGLELLVDHGSTDAGHWAVEQVWYNGKFYGSPEELARKYA
EVLKKHGITDPGKVVTTPLTVGFFDGK--DGLQQ-----DARLLKVVSYLDTGDGNYWAH 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QAAACAPDLPAFSHGG 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLP 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ITWARYPLAVTKYRESELCSSSIYHQNDPWHPPVVFEQFLHNNENIENEDLVAWVTVGFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GWGLGSVTHELAPGIDCPETATFLDTFHYYDADDPVHYPRALCLFEMPTGVPLRRHFNSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAVLYGGWSFAFRLRSSSGLQVLNVHFGGERIAYEVSVQEAVALYGGHTPAGMQTKYLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ELLVNHKALDPARWTIQKV---FYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HIPHSEDIPNTATPGNSVGFLLRPFNFFPEDPSLASRDTVIV-WPRDNGPNYVQ--RWIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFL 683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EQTQYSWERQAAFRFKRKLPKYLLFTSPQENPWGHKRSYRLQIHSMADQVLPPGWQEEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LRHGTRLHTHLIGNIHTHLVHYRVDLDVAGTKNSFQTLQMKLENITNPWSPRHRVVQPTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FKGGFNFYAGLKGQVLVLRTTSTVYNYDYIWDFIFYPNGVMEAKMHATGYVHATFYTPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DGEVDVVVLEDPLPGGKGHDSTEEPPLFSSHKPRGDFPSPIHVSGPRLVQPHGPRFRLEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGLVNVVLIPDNGTGGSWSLKSPVPP------GPAP-----PLQFYPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PISTAEY-----ALLYHTLQEATKPLHQFFLNTTGFSFQDCHDRCLAFTDVAPRGVASGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PVLFQEYLDIDQMIFNRELPQASGLLHH------CCFYKHRGRNLVTMTTAPRGLQSGD 22
                                                                                       Similarity
                                                                                         10.1%;
                                                                                     Score 413;
Pred. No. 2
                                                                        Mismatches
                                                                    DB 2;
2.1e-24;
hes 213;
                                                                                                      Length
                                                                        Indels
                                                                        108;
                                                                    Gaps
                                                                                                                                                                                                                                                                                      the
                                                                                                                                                                                                                                                                                                                                                                                                pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                327
                                     301
                                                                                                                                                                                                                                                                                        monoamine
                                                                                                                                                                              PID:g216723
                                                                      21;
                                                                                                                                                                                                                                                                                      0X10
```

```
744
                                       711
                                                                                     694
                                                                                                                               651
                                                                                                                                                                           634
                                                                                                                                                                                                                       909
                                                                                                                                                                                                                                                                   582
                                                                                                                                                                                                                                                                                                               548
                                                                                                                                                                                                                                                                                                                                                        522
                                                                                                                                                                                                                                                                                                                                                                                                    497
                                                                                                                                                                                                                                                                                                                                                                                                                                              462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           302
                                  FDEDPS 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AYLDSGDYGMGTLTSPIVRGKDAPSNAVLLDETIADYTGKPTTIPGAVAIFE-----
                                                                                     LGQYAK----
                                                                                                                                                                           QIIPYAGGTHPAATGAKFAPDEWIYHRLSFMDKQLWVTRYHPTERYPEGKYPNRSAHDTG
                                                                                                                                                                                                                       QMLSFAG--EPLPQNSSMA-----RGFSWERYQLAVTQRKEEE-----PSSSSVFNQ
                                                                                                                                                                                                                                                                                                            PMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS--NKWGHPRGYRI
                                                                                                                                                                                                                                                                                                                                                        VKGVLAKTMHDPSAKEDTRYGTLIDHNIVGTTHQHIYNFRLDLDVDGENNTLVAMDPEVK
                                                                                                                                                                                                                                                                                                                                                                                                                                              RYAGPEYKHLEMGKPNVSTERRELVVRWISTVGNYDYIFDWVFHDNGTIGIDAGATGIEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RHHSDLYSHYFGG-----LAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYIS 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RYVDGG-FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GDTIHWQNWDFHLRLNSRVGPILSTVTYNDNGTKRQVMYEGSLGGMIVPYGDPDVGWYFK 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GSRVASSLWTFSFGLGAFSGPRIFDVRFQG----ERLVYEISLQEALAIYGGNSPAAMTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIENLVAVVDLEAKKIIKIEEGPVIPVPMEPRPYDGRDRNAPAVKPLEITEPEGKNYTIT
  FDETPT
                                                                                                                            NDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNF
                                                                                                                                                                                                                                                                   PNT - - - AGGPRTSTMQVNQYTIDSEQKAAQKFDPGTIR - - - LLSNTSKENRMGNPVSY - -
749
                                                                                                                                                                                                                                                                                                                                                                                                  ----GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFV
                                                                                     -DDESLTNHDDVVWITTGTTHVARAEEWPIMPT - - EWALALLKPWNF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---PVPPGPAP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----PLQF-YPQGPRFSVQ
                                                                                     743
                                                                                                                                                                                                                                                                                                                                                                                                  547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             441
                                                                                                                                                                           693
                                                                                                                                                                                                                       650
                                                                                                                                                                                                                                                                   633
                                                                                                                                                                                                                                                                                                                                                                                                                                              521
```

δÃ 밁 Š В Ş 밁 Š

밁 Š 밁 Š 밁 Ş 밁 Š 밁

C;Species: Escherichia coli
C;Date: 12-Sep-1997 #sequence_revision 17-Sep-1997 #text_change
C;Date: 12-Sep-1997 #sequence_revision 17-Sep-1997 #text_change
C;Date: 12-Sep-1997 #sequence of Escherichia coli K-12.
A; Rose, D.J; Mau, B.; Shao, Y.
Science 277, 1453-1462, 1997
S;Title: The complete genome sequence of Escherichia coli K-12.
A;Reference number: A64720; MUID:97426617; PMID:9278503 A;Molecule type: DNA A;Residues: 1-247,'E',249-257,'VI',260-276,'I',277-287,289,'I',291-455,'P',457-658,'D A;Cross-references: GB:D23670; NID:g474301; PIDN:BAA04900.1; PID:g809499 A;Experimental source: strain K-12; substrain W3110 A;Experimental source: strain K-12; Bader, R.; Postma, P.W.; de Vries, S.; Duine, J.A. A;Cross-references: GB:AE000235; GB:U00096; NID:g1787643; A;Experimental source: strain K-12, substrain MG1655 R;Azakami, H.; Yamashita, M.; Roh, J. J. Ferment. Bioeng. 77, 315-319, 1994 A;Title: Nucleotide sequence of the gene for monoamine ox: A;Reference number: I40923 A; Reference number: A64720; A; Accession: E64889 A; Status: nucleic acid seque A;Title: Cloning of the maoA A;Reference number: S65442; M A;Accession: S65442 amine oxidase (copper-containing) (EC 1.4.3.6) tynA precursor - Escherichia N;Alternate names: monoamine oxidase; tyraminase; tyramine oxidase C;Species: Escherichia coli A; Molecule type: protein A; Residues: 41-48 <STE> R; Steinebach, V.; Benen, Eur. J. Biochem. 237, 58 A; Reference number: A; Accession: I40923 A; Molecule type: DNA A; Status: translated from GB/EMBL/DDBJ A; Residues: 1-757 <BLAT> acid sequence not shown; 584-591, 1996 A gene that encodes aromatic amine MUID:96235221; PMID:8647101 translation not Perna, N.T.; Burland, V.; Riley, #text_change 01-Mar-2002 oxidase PIDN: AAC74468.1; shown oxidase of Escherichia (maoA) from PID:g17876 Escherichi coli (str

X

```
A;Experimental source: strain w3350
C;Genetics:
A;Genet tynA; maoA
C;Complex: homodimer
C;Function:
A;Description: catalyzes oxidation of phenylethylamine and water to phenylacetaldehyde,
A;Pathway: amino acid metabolism; phenylethylamine catabolism
A;Note: 2,4,5-trihydroxyphenylalanine quinone (topaquinone) cofactor; copper cofactor;
C;Superfamily: amine oxidase (copper-containing)
C;Keywords: copper; oxidoreductase; quinoprotein; topaquinone
F;1-33/Domain: signal sequence #status predicted <SIC>
F;34-757/Product: amine oxidase (copper-containing) #status predicted <MAT>
A;Reference number: A56102; MUID:95181469; PMID:7876243
A;Accession: A56102
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-684 <CHO>
A;Cross-references: GB:D38508; NID:g994746; PIDN:BAA07517.1; PID:g994747
A;Note: authors translated the codon TTG for residue 239 as Phe
C;Superfamily: amine oxidase (copper-containing)
C;Keywords: oxidoreductase
                                                                                                                                                                                                                                                                             amine oxidase (copper-containing) (EC 1.4.3.6) - Arthrobacter globiformis C;Species: Arthrobacter globiformis C;Date: 13-Apr.1995 #sequence_revision 03-Nov-1995 #text_change 20-Jun-200C;Accession: A56102
                                                                                                                                                                                                                                                                                                                                                              RESULT
A56102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                R;ChOi, Y.H.; Matsuzaki, R.; Fukui, T.; Shimizu, E.; Yorifuji, T.; Sato, H.; Ozaki, J. Biol. Chem. 270, 4712-4720, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    312
                                                                                                                                                                                                                                                                                                                                                                                                                                                      716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           265 FYQGRYYDSLAQLEAQFEAGLYNVVLIPDNGTGGSWS------LKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                             Copper/topa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAG--EPLPQNSSMA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YFDGK---DGLKQ------DARLLKVISYLDVGDGNYWAHPIENLVAVVDLEQKKIVKIEEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTTHVARAEEWPIMPT--EWVHTLLKPWNFFDETPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GFLHIPHAEDIPHTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GNEQDAAQKFDPGTIR-LLSNPNKENRMGNPVSY--QIIPYAGGTHPVAKGAQFAPDEWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LIDHNIVGTTHQHIYNFRLDLDVDGENNSLVAMDPVVKPNT---AGGPRTSTMQVNQYNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ELVVRWISTVGNYDYIFDWIFHENGTIGIDAGATGIEAVKGVKAKTMHDETAKDDTRYGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APSNAVLLNETIADYTGVPMEIPRAIAVFE-----RYAGPEYKHQEMGQPNVSTERR 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGG-----LAET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PVVPVPMTARPFDGRDRVAPAVKPMQIIEPEGKNYTITGDMIHWRNWDFHLSMNSRVGPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PVPPGP-----AP---PLQFY-PQGPRFSVQGSRVASSLWTFSFGLGAFSGPR 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YHRLSFMDKQLWVTRYHPGERFPEGKYPNRSTHDTGLGQYSK--DNESLDNTDAVVWMTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ISTYTYNDNGTKRKVMYEGSLGGMIVPYGDPDIGWYFKAYLDSGDYGMGTLTSPIARGKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IFDVRFQG----ERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVD 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -RGFSWERYQLAVTQRKEEEPSSSSVF-NQNDPWAPTVDFSDFINNETIAGKDLVAWVTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                             quinone-containing histamine oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       74; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 397.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 3.6e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       211;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                               from
                                                                                                                                                                                                               Arthrobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9;
                                                                                                                                                                                                                                                                                                     20-Jun-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          458
                                                                                                                                                                                                               globiformis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20;
                                                                                                                                                                                                                                                         <u>۲</u>
::
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                 Ş
                                                                                                                                                                                                                                    ρ
                                                                                                                                                                                                                                                                                                    ρy
                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
멍
                          Qy
                                                               Ъ
                                                                                              Qy
                                                                                                                                   밁
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
650
                                                                   592
                                                                                                                                     536
                                                                                                                                                                                                          479
                                                                                                                                                                                                                                        548
                                                                                                                                                                                                                                                                          419
                                                                                                                                                                                                                                                                                                           488
                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     141 LVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCF
                              724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39 PHCPSVSPSAQPWT--HPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7
                                                                                                                                                      AFCVFEQNOGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEI 487
                                                                                                                                                                                                                                                                                                                                                                                                             VVPYGDPSPYRSWQNYFDSGEYLVGRDANSLRLGCDCLGDITYMSPVVADDFGNPRTIEN
                                                                                                                                                                                                                                                                                                                                                                                                                                  LAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPD-NGTGGSWSLKSPVPPGPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YKHRGRNLVTMTTAP-----RGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKA 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LVVD-----RRELNPEADG-----QLPVLLEEFGIIEDIL--SEDPQWNAAL----
                               YFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGG
                                                                                                                                   P---EGNPTLAMADDSSIASRAAFARHHLWVTRHAEEELYAAGDFVNQHPGGAVLP-AYV
                                                                                                                                                                                                                                      PMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIQ
                                                                                                                                                                                                                                                                                                          RFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFV
                                                                                                                                                                                                                                                                                                                                             GICIHEEDAGILWK--HTDEWAGSDEVRRNRRLVVSFFTTVGNYDYGFYWYLYLDGTIEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IEIMQPEGPSFTLEGNHLSWAGWDLRVGFDAREGLVLHQLHHSHKGRRRPVIHRASISEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLOFYPOGPRFSVOGSRVASSLWTFSFGLGAFSGPRIFDVR--FOGER--LVYEISLQEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AHPIDGLVAFVDVENRRVNHL-----IDDGPVPV---PEVNGYTTDPAIRGELRTDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -TARGLTPAQVRVAPLSAGVFEYGNEEGKRL-----LRGLGFRQDHP-----ADHPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------ESTRFAYLGLIEPPKTTRQGDVTGAARLVRAMLWDAAQSRSLDVRLSLATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FSVELQLPPKAAALAHLDRGSPP-----PAREALAIVFFGRQPQ-----PNVSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PSTPLVQDPPVPATLVHAAAQHPLEQLSAEEIHEARRILAE---AGLVG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182;
                                                               AQDRDIDGQDLVVWHSFGLTHFPRPEDWP--IMPVDTTGFTLKPHGFFDENPTLNVPSSA
                                                                                                 INNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSI 723
                                                                                                                                                                                                        PKG-PGNPHG--NAFTQKRTLLARESEAVRDADGAKGRVWHISNPDSLNHLGHPVGYTLY
                                                                                                                                                                                                                                                                        EAKATGIVFTAALPDKDYAYASEIAPGLGAPYHQHLFSARLDMMIDGDANRVEELDLVRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
----AGHCGTG-----SEREHAAPGGTAVGHSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative 107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 377; DB 2; 1
Pred. No. 1.3e-21;
)7; Mismatches 343;
                               759
673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 684;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                          606
                                                                                                                                                                                                                                                                                                          547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96
                                                                                                                                                                                                          535
                                                                                                                                                                                                                                                                                                                                                                                                                                               427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          52
                                                                                                                                                                      663
                                                                                                                                                                                                                                                                                                                                             418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                   649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28;
```

RESULT 8

Sulfolobus solfataricus

Redd

amine oxidase (copper-containing) (tynA) [imported] - Sulfolobus solfataricus C;Species: Sulfolobus solfataricus C;Species: 24-May-2001 #sequence_revision 24-May-2001 #text_change 15-Jun-2001 C;Accession: G90330 R;She, O; Singh, R.K.; Confalonieri, F.; Zivanovic, Y.; Allard, G.; Awayez. Jong, I.; Jeffries, A.C.; Kozera, C.J.; Medina, N.; Peng, X.; Thi-Ngoc, H.I arrett, R.A.; Ragan, M.A.; Sensen, C.W.; Van der Oost, J. submitted to GenBank, April 2001 A; Reference number: A99139 A; Accession: G90330 A; Description: Sulfolobus solfatarious complete genome A;Status: preliminary Awayez, M. goc, H.P.;

```
A; Residues: 1-660 < A; Cross-references: C; Genetics: A; Gene: tynA C; Superfamily: amir
R:Zhang, X.; Fuller, J.H.; McIntire, W.S.
J. Bacteriol. 175, 5617-5627, 1993
A:Title: Cloning, sequencing, expression, and regulation hylotroph.
A:Reference number: A48646; MUID:93374858; PMID:8366046
A:Accession: A48646
A:Status: preliminary; not compared with conceptual trana, Molecule type: DNA
                                                                                                                                              RESULT 9
A46646
amine oxidase (copper-containing) (EC 1.4.3.6) - Arthrobacter
C:Species: Arthrobacter sp.
C:Date: 03-May-1994 #sequence_revision 03-May-1994 #text_chang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Superfamily: amine oxidase (copper-containing)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cross-references: GB:AE006641; NID:g13814942; PIDN:AAK41902.1; GSPDB:GN00155
                                                                                                                                     Accession:
                                                                                                                                                                                                                                                                                                                                             542
                                                                                                                                                                                                                                                                                                                                                                                                                   482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123
                                                                                                                                                                                                                                                                               595
                                                                                                                                                                                                                                                                                                               670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G-----VDC-PYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LVIYDVRYIDENNRERMILYRASVVDLMVPYGDPSPFHNKKMVLDAGDYGLGNFIVPLSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LNEEEIRKSVEVLKROLN---LDAKVVK-----FFSVELKEPKKQEYLEWRNNKNIKIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAR
                                                                                                                                                                                                                                                                           VDEDLVIWYTLGVEHVVRIEDWP--VMPVEMAGFRLIPDGFFDKNPTIYLPRQLRING
                                                                                                                                                                                                                                                                                                  AGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRG
                                                                                                                                                                                                                                                                                                                                               LPDDSYVRRRGAYINYHLWVTPYNEEERYASGDY-----PYLRANDGLPKYILKKRSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTRVTPEVYAPIHIHFFNIRLNINVDGLRNRIY----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GKSEVRRNRRLVVSFWATLANYDYGFFWYFYQDGSIEFLVKLTGIINDDSISEKDPTPKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLAET ---- VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLF -- GATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GNYDLYNCDCFGEVIYHLDVTRVSSNGTPIKIKKAICVHEEDFGVLWR--HTDLRS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VDEELRGRRVAIG-YMW-VKKDIEDNGYGRPVHGLMPWVDLDKMEVIRIDDHGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VRNDKRVQEA-----HVVDCWAPG----H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQM 182
                                                                                                                                                                                                                                                                                                                                                                                                               NPVGNAFFAEENLLENEADARRHVNPQTGRYWKIVNIQKKNYLGLPVAYRLVPGHNVLPP
                                                                                                                                                                                                                                                                                                                                                                                                                                               ------LLEMEEQAAFLVGSATPRYLYLAS-NHSNKWGHPRGYRIQMLSFAGEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIFDVRFQGER-----LVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KSPVPPGPA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ESL-VKYYNFQDR-KVYEAII-----SLDNNVVKEIRSIDAAY--PPITLDEFGECEKA
                                                                                                                                                                                                                                                                                                                                                                               LPQNSSMARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSD-----FINNETI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -SPLPLQDANYTPEKLGKIFGDDLKPIEIRQPLSSSIKINGWEISWYRWRLRIGYTPREG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        al Similarity
175; Conserv
                                                                                                                                         A48646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <KUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9.0%;
                 compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----PPLQF-YPQGPRFSVQGSRVASSLWTFSFGLGAFSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 368.5; DB 2
Pred. No. 5.8e-21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                     regulation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----EVNLRGEPITEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2,
                                                                                                                                                       #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                     of.
                                                                                     the
                                                                                                                                                                                       sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137;
                                                                                     structural
                                                                                                                                                       29-Sep-1999
                                                                                                                                                                                       (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                             650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         400
                                                                                                                                                                                                                                                                                                                                               594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                               614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203
                                                                                                                                                                                       P1)
                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28
                                                                                     for
                                                                                     the
```

```
A;Residues: 1-648 <ZHA>
A;Residues: GB:LI2990; NID:g289152; PIDN:AAA22074.1;
A;Cross-references: GB:LI2990; NID:g289152; PIDN:AAA22074.1;
C;Superfamily: amine oxidase (copper-containing)
C;Keywords: oxidoreductase
                                                  copper amine oxidase-like protein - Arabidopsis thaliana N;Alternate names: protein T4C9.130 C;Specias: Arabidopsis thaliana (mouse-ear cress) C;Date: 20-Apr-2000 #sequence_revision 20-Apr-2000 #text_change 02-Sep-2000 C;Accession: T48139 R;Bevan, M; Peters, S.A.; van Staveren, M; Dirkse, W; Stiekema, W; Bancı
R;Bevan, M.; Peters, S.A.; van Staveren, M.; Dir
submitted to the Protein Sequence Database, June
A;Reference number: 224485
A;Accession: T48139
                                                                                                                                                      RESULT
T48139
                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       175
                                                                                                                                                                                                                           626
                                                                                                                                                                                                                                                          717
                                                                                                                                                                                                                                                                                            568
                                                                                                                                                                                                                                                                                                                             669
                                                                                                                                                                                                                                                                                                                                                               520
                                                                                                                                                                                                                                                                                                                                                                                                618
                                                                                                                                                                                                                                                                                                                                                                                                                              469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12
                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity es 177; Conserv
                                                                                                                                                                                                                           LNLPTSTSTTQTGEADTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YNIGNMANSITLGCDCLGEIKYFDGHSVDSHGNPWTIENAICMHEEDDSI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LWTFSFGLGAFSGPRIFDVRFQGE----RLVYEISLQEALAIYGGNSPA-AMTTRYVDGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VLIPDNGTGGSWSLKSPVPPGPAPPLQFY------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NISGAGFFLHHVGLELLVNHKALD-PARWTIQK--VFYQGRYYDSLAQLEAQFEAGLVNV 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GVSHPLDPLSRVEIARAVAILKE--GPAAAESFR-----FISVELREPSKDDL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GOSOLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLD
                                                                                                                                                                                                                                                                                            DGLHIWTQKDRNIVDTDLVVWYTFGMHHVVRLEDWP--VMPRQNIGFMLEPHGFFNQNPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATGKYGNQVSEHTL-GTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KHFDFREGTAETRRSRKLVISFIATVANYEYAFYWHLFLDGSIEFLVKATGILSTAGQLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DWSFRVGFTPREGLVLHQLKFKDQGVDRPVINRASLSEMVVPYGDTAPVQAKKNAFDSGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VRLEDDQA-----IPVPSARGNYLPKYVGEARTDLKPLNITQPEGASFTVTGNHVTWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GEDNEGRRL--MRALVFVRDEADDSPYAHPIENFIVFY----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EFAECEDAC - - RKDPE - - - - - - - - - - - VIAALAKRGLTNLDLVCFEPWSVGYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLYTMTTAPRGLQSGDRA---TWFGLYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAGVAVAREADAVLV--DRAQARSFEAVVD-----LEAGTVDSWKLLAENIQPPFMLD 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQ
                                                                                                                                                                                                                                                                                                                          ------IAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                              NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD-----FSDFINNET---
                                                                                                                                                                                                                                                                                                                                                                                                                              GTAFMAVDRLLETEQKAIRKTNEAKHRFWKIANHESKNLVNEPVAYRL-----IPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SH--YFGGLAET----VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSA-FLF
                                                                                                                                                                                                                                                          FYSADSIYFRGDQDAGAC
                                                                                                                                                                                                                                                                                                                                                               NG-----IQLAA--RDDAYVSKRAQFARNNLWVTAYDRTERFAAGEYPNQATGAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GEKNPYGQSLNNDGLYAPIHQHMFNVRMDFELDGVKNAVYEVDMEY-----PEHNPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                               -QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIQMLSFAGEPLPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8.9%;
                                                                                                                                                                                                                           643
                                                                                                                                                                                                                                                            734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 363; DB Pred. No. 1.6e-6; Mismatches
                                      Dirkse, W
June 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -20;
301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -- PQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------DLNAG--KV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PID: g289153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ė
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                               617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         114
                                                                                                                                                                                                                                                                                                                                                                                              668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57
                                                        Bancroft,
                                                                                                                                                                                                                                                                                              625
                                                                                                                                                                                                                                                                                                                                                               567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31;
```

```
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-756 <BEV>
A;Cross references: EMBL:ALO80318
A;Experimental source: cultivar Columbia; BAC clone
C;GenetLos:
A;Map position: 4
A;Introns: 460/3; 498/3; 686/2
A;Note: T4C9.130
C;Superfamily: amine oxidase (copper-containing)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                         ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                     밁
                                                                                                õ
                                                                                                                                       밁
                                                                                                                                                                          Ş
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                       883
                                                                                                        667
                                                                                                                                            630
                                                                                                                                                                                                              570
                                                                                                                                                                                                                                                                                                                                                      466
                                                                                                                                                                                                                                                                                                                                                                                       448
                                                                                                                                                                                                                                                                                                                                                                                                                           409
                                                                                                                                                                                                                                                                                                                                                                                                                                                            401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141
 743
                                  727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94 NCVFSVELQLPPKAAALAHLDRGSPPPAREALAI------VFFGRQPQPNVSE 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Match 8.7%;
Local Similarity 22.2%;
                                                                                                                                                                                                                                 PWSPEHQLQR---LQVTRKLLEMEEQAAFLVGSATP-RYLYLASNHSNKWGHPRGYRIQM
: | |: | : | : |: | |: |: |
                                                                                                                                                                                                                                                                                                    GNQV-----SEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAV
                                                                                                                                                                                                                                                                                                                                                LNDCPRNAAYMDGVFAAADGTPFVRENMVCIFESYAGDIGWRHSESPITGIPIREVR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQN------QGLPLRRHHSDL 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VISRVRVHDPDTHETRDVMYKGFVSELFVPYMDPSDAWYFKTYMDAGEYGFGLQAMPLVP 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----RGVNLTDVICFP--ISCG----WFGNKEENARVIKSQCFMTQGTPNFYMRPIEGLT 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RVSGYPMMTIEEMNDITV-----VPFSNAD----FNRTIIS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LVVG-PLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HALHTVVLEEPEK-NLVRHWEKGNPLPPRKASVIARVGADTHVLTVDISTGRVDSENSPV
                                                                   RDIENKDIVVWYTLGFHHIPCQEDFPIMPTVSS--SFDLKPVNFFERNPILSAAPNF---
                                                                                         ETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFR 726
                                                                                                                                                                          LSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD-FSDFINN 666
                                                                                                                                                                                                           QETEPGESPRKSYLKAVRNIAKTEKDGQIKLSLYDPSEFHVINSGKTTRVGNPTGYKVVP 629
                                                                                                                                                                                                                                                                                KNOVEKDKDGNEEELHGTLLSENVIGVIHDHYVTFYLDLDVDGPDN----SFVKVNLKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RIFDVR-----FQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTR 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PPG-------PAPPLQF-YPQGPRFSVQGSRVAS-SLWTFSFGLGAFSGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ILID---LDTKQ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPV 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FYKHRGRNLVTMTTAPRGLQSGDRATWFG------LYYNISGAGFFLHHV-GLE 246
-EHDLPVCGVQSVS
                                  GDQDAGACEVNPLA 740
                                                                                                                                       RTTAASLLDHDDPPQKRGAFTNNQIWVTPYNKSEQWAGGLFTYQSHGDDTLAVWSD--RD
                                                                                                                                                                                                                                                                                                                                                                                     YSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PGSTNTDYRFQKLATTDKTRPLNPISIEQPRGPSFVIEDNHLVKWANWEFHLKPDPRAGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative 100; Mismatches 280;
 755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 357.5; DB 2; Pred. No. 5.3e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ------IPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T4C9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels 191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 756;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                184
                                                                                                                                                                                                                                               607
                                                                                                                                                                                                                                                                                                                                                                                                                        465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      288
                                                                                                                                       687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29
```

RESULT 11
G71412
probable amine oxidase - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
A;Variety: columbia

GETLRPSNEFDNDP 647

```
C;Genetics:
A;Map position: 4COP9-4G3845
C;Superfamily: amine oxidase (copper-containing)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Date: 03-Aug-1998 #sequence_revision 03-Aug-1998 #text_change 20-Jun-2000 C;Accession: G71412 R;Bevan, M.; Bancroft, I.; Bent, E.; Love, K.; Goodman, H.; Dean, C.; Bergkamp, P.; Wedler, H.; Wedler, E.; Wambutt, R.; Weitzenegger, T.; Pohl, T.M.; Terryn, avanagh, T.; Hempel, S.; Kotter, P.; Entian, K.D.; Kieger, M.; Schaeffer, M.; Fu Nature 391, 485-488, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Molecule type: DNA
A;Residues: 1-650 <BEV>
A;Cross-references: GB:Z97337; NID:g2244829; PID:g2244851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Title: Analysis of 1.9 Mb of contiguous sequence from chromosome 4 of Arabidopsis A;Reference number: A71400; MUID:98121113; PMID:9461215 A;Accession: G71412 A;Status: preliminary; nucleic acid sequence not shown; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Authors: Mueller-Auer, S.; Silvey, M.; James, R.; Montfort, erhoft, A.; Moores, T.; Jones, J.D.G.; Eneva, T.; Palme, K.; F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
δ
                                             밁
                                                                                 Q
                                                                                                                          밁
                                                                                                                                                          Ş
                                                                                                                                                                                                    β.
                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; Chalwatzis,
                                                                                                                                                                                                      470
                                                                                                                                                                                                                                                                               412
                                                                                                                                                                                                                                                                                                                   485
                                                                                                                                                                                                                                                                                                                                                         353
                                                                                                                                                                                                                                                                                                                                                                                            428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           102
                                                                                                                          530
                                                                                                                                                                                                                                                                                                                                                                                                                                  293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             155 VTVER-----HGGP----LPYHRRPVLFQEYLDIDQMIFNREL--PQASGLLHHCC
                                                                                                                                                                596
       702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99 VELQLPPKAAALAHL----DRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56 LDLEEPNKSHVLQWLSPNPSKKPPPPRRRSFVVVRAGGQ----TYELII------D
                                                                                                                                                                                                                                                                                                                                                                              AFCVFEQNQGLPLRRHHSDLY---SHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -SMQVIKYSDRFRKP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WYGE-----TTTRRELKA-----SCFYRDGSVNVFTRPIEGITVTID---VD---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHV-GLELLVNHKALDPAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LTTSKIASSRIYTGHGFPSFTFIELFKASKLPLTYPPFKKSILDRSLNISEVSCIPFTVG
       GFFLRPYNFFDEDP 715
                                       VMCVFEKN-GYGASFRHTEINVPGQVITSGEAEISLVVRMVATLGNYDYIVDWEFKKNGA
                                                                                                                                                                                                                                                                                                                                                                                                                                FVPYMDPTYEWYYRTFMDIGEFGFGRSAVNLQPLIDCPQNAAFLDGHVAGPDGTAQKMTN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NVSDTGFKILGNRVKWANWKFHVGFTARAGVTISTASVLDPRTKRFR--RVMYRGHVSET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -PQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDV------RFQGERLVYEISLQEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFY-
                                                                                                                          KIGNTVGYRL-----IPEHLQATSLLTDDDYPELRAGYT----KYPVWVTAYDRSE
                                                                                                                                                            KWGHPRGYRIQMLSFAGEPLP---QNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQND 652
                                                                                                                                                                                                                                      NWVWAEDMVFVPMA-VPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSN 595
                                                                                                                                                                                                                                                                                                                 IEI-----RFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              161;
                                                                                                                                                                                                      NSLVKAKLKTVRVTEVNKTSSRRKSYWTVVKETAKTEADGRVRLGSDPVELLIVNPNKKT
                                                                                                                                                                                                                                                                             IRVGVDLTGVLEVKATSYTSNDQI---TENVYGTLVAKNTIAVNHDHYLTYYLDLDVDGNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; Score 353.5; DB 2;
; Pred. No. 8.9e-20;
96; Mismatches 278;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----- IPDK-EGNDFRTKH-----RPFPFFC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels 139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Benes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Benes, V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                   536
                                                                                                                                                                                                                                                                                                                                                                                            484
                                                                                                                                                                                                                                                                                                                                                                                                                                352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A.; Puigd
Rechman,
                                                                                                                                                                                                                                                                                                                                                         411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           161
                                                                                                                          576
                                                                                                                                                                                                      529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : Puigdom
chman, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Z 7
```

```
A; Molecule type: protein
A; Molecule type: protein
A; Residues: 3-18; 38-52; 112-142; 185-209; 219-235; 402-419; 474-497; 504-537; 540-559; 611-625
C; Comment: This enzyme catalyzes the oxidative deamination of various biogenic primary
C; Superfamily: amine oxidase (copper-containing)
C; Keywords: copper binding; oxidoreductase; quinoprotein; topaquinone
F; 355, 431, 433/Binding site: copper (His) #status predicted
F; 382/Modified site: topaquinone (Tyr) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                   Ş
                                                                                                                                           В
                                                                                                                                                                                δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-638 <TAN>
                        Š
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                             Q.
                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: PC2070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: GB:U03517; NID:g451488; PIDN:AAA18114.1;
                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                          449
                                                                                                                                                                                                                                                                  538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                216
                        713
                                                                                                                                                                                                                                                                                                         390
                                                                                                                                                                                                                                                                                                                                                                                    333
                                                                                                                                                                                                                                                                                                                                                                                                                              419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     106 KAAALAHLD--RGSPPPAREALAIVFF----GRQPQPNVSELVVGPLPHPSYMRDVTVER 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                        EDP 715
                                                                                                                                                                                                                                                         WVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RIAYLGVLDPARGAGSEAEDRRFRVFIHDVSGARPQ------EVTVSV 79
                                                            GGAGLPSY--IAQDRDIDGQDIVVWHTFGLTHFPRVEDWP--IMPVDTVGFKLRPEGFFD
                                                                                                                                                                              WGHPRGYRI---QMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVF-NQND 652
                                                                                                                                                                                                                                                                                                     LYLDGTIEFEAKATGVVFTSAFPEGGSDNI-SQLAPGLGAPFHQHIFSARLDMAIDGFTN
                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIAEMVVPYGDPSPIRSWQNYFDTGEYLVGQYANSLELGCDCLGDITYLSPVISDAF---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TQKPISITQPEGPSTTVTGGNHIEWEKWSLDVGFDVREGVVLHNIAFRDGDRLRPIINRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GPAPPLQFYPQGPRFSVO-GSRVASSLWTFSFGLGAFSGPRIFDVRFQ-GERL---VYEI 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPP 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TNGTVISAVELDTAATGELPVLEEEFEVVEQLLATDERWLKALAARNLDVSKVRVAPLSA 139
                                                                                                 PWAPTVDFSDFINNETIAGKDLVAWVTAGELHIPHAEDIPNTVTVGNGVGFFLRPYNFFD 712
                                                                                                                                         LNEPVGYKLHAHNQPTLLADP----GSSIARRAAFATKDLWVTRYADDERYPTGDFVNQHS
                                                                                                                                                                                                                      RVEEEDVVRQTMGPGNERGNAFSR----KRTVLTRESEAVREADARTGRTWIISNPESKNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SLQEALAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDC----PYLATYVDWHFLLE 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---RVIDTGVFPVPA--EHGNYTDP------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GVFEYA---EERGRRIL-----RGLAFVQDFPEDSAW---AHPVDGLVAYVDVVSKEVT 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GLLHHCCFYKHRGRNLVTMTTAPRGL----QSGDRATWFGLYYNISGAGFFLHHVGLELL 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HGGPL------PYHRRPVLFQEYLDIDQMIFN-------RELPQAS 192
                                                                                                                                                                                                                                                                                                                                          FHPSGAIEIRFYATGYI-SSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLEN 537
                                                                                                                                                                                                                                                                                                                                                                                  -GNPREIRNGICMHEEDWGILAK--HSDLWSGINYTRRNRRMVISFFTTIGNYDYGFYWY
                                                                                                                                                                                                                                                                                                                                                                                                                     SQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTV 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8.3%;
23.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 340; DB 2; Pred. No. 1e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ELTGPLRT 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels 132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PID:g451489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                   448
                                                                                                                                                                                                                                                           596
                                                                                                                                                                                                                      505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28;
                                                                                             Š
                                                                                                                                       밁
                                                                                                                                                                          Š
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Comment: This enzyme, a homodimer, containing one Cu2+ ion and one 2,4,5-trihydroxy diamine substrate and catalyzes the oxidative deamination of mono-, di-, polyamines t C; Superfamily: amine oxidase (copper-containing) C; Keywords: copper; copper binding; homodimer; oxidoreductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amine oxidase (copper-containing) (EC 1
C;Species: Pisum sativum (garden pea)
C;Date: 09-Jun-2000 #sequence_revision
C;Accession: JC7251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Molecule type: mRNA
A;Residues: 1-674 <KOY>
A;Cross-references: DDBJ;AB026253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Reference number: A; Accession: JC7251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Title: Molecular cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Koyanagi, T.; Matsumura, K.; Kuroda, S.; Tan
Biosci. Biotechnol. Biochem. 64, 717-722, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Experimental source: seed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                            494
                                                                                                 547
                                                                                                                                       437
                                                                                                                                                                              496
                                                                                                                                                                                                                      377
                                                                                                                                                                                                                                                           445
                                                                                                                                                                                                                                                                                                     325
                                                                                                                                                                                                                                                                                                                                        386
                                                                                                                                                                                                                                                                                                                                                                                265
                                                                                                                                                                                                                                                                                                                                                                                                                       332
                                                                                                                                                                                                                                                                                                                                                                                                                                                               218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                  PRGYRIQMLSFAGEPL----
                                                                                                                                       E---IKGTNIKHKDEIKEDLHGKLVSANSIGIYHDHFYIYYLDFDIDGTHNSFEKTSLKT
                                                                                                                                                                                                                  DGG-FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHH 444
                                                                                                                                                                                                                                                                                                                                                                                                                     SSLWTFSFGLGAFSG-----PRIFDV-RFQGERLVYEISLQEALAIYGGNSPAAWTTRYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DPLTKEEFLAV-QTIVQNKYPISKNKLAFHYIGLDD-----PEKDHVLRYE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MASTTTMKIAIFSVITIISFHAVV-----L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MNQKTILVLLILAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLF
                                                                                                                                                                                                                                                         SDLYSHYFGGL-----AETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYI
                                                                                                                                                                                                                                                                                                 DSGEFGFGLSTVSLIPNRDCPPHAQFIDTYIHSANGTPILLKNAICVFEQ-----YG
                                                                                                                                                                                                                                                                                                                                                                              WANWKFHIGFDVRAGIVISLASIYDLEKHKSRRVLYKGYISELFVPYQDPTEEFYFKTFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AQLEAQFEAGLVNVVLIPD-NGTGGSWSLKSPVPPGPAPP--LQFYPQGPRFSVQGSRVA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FGLYYNI ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRR 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADLSREELTAVMRFLTQRLGP------GLVDAAQARPSDNCVFSVELQLPPKAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RSP
                                                            VRIKDGSSKRKSYWTTETQTAK-----TESDAKITIGLAPAELVVVNPNIKTAVGN
                                                                                             VPM-----AVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FGEEKNVRTVRLDCFMKESTVNIYVRPITGITIVAD---LD-----LMKIV---EYHDR-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----LSVDEQSLAIELP-----LKYPPFIDSVKKRGLNLSEIVC-----SSFTMGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PVLFQEYLDIDQMIFNRELPQASGLLHHCCF---YKHRGRNLVTMTTAPRGLQSGDRATW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -THPTLVSIP--RKSFVVAIINSQTHEILIDLRI----RSIVSDNIHNGYGFPI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                             --DIEAVPTAENTEYQVSKQSP-PFGPKQHSLTSHQPQGPGFQIEGHSVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8.1%;
23.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and heterologous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -SGAGFFLHHV-GLELLVNHKALDPARWTIQKVFYQGRYYDSL
                                                                                                                                                                              -YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             105;
-PQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 332; DB 2;
Pred. No. 4.7e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.4.3.6) - garden
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-Jun-2000 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tanizawa,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            expression of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           293; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 674;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       seedling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21-Jul-2000
```

127

109 35

80

60

40;

copper

amine

493

653

495

376

436

385

264

QY 445 SDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATG 493	QY 386 DGG-FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHH 444		QY 297 GGSWSLKSPVPPGPAPPLQE	QY 238 FELHHY-GLELLYNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLYNVVLIPDNGT 296 :: :	QY 178 DIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAG 237 ::: : : : : : : :	OY 127 IVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYL 177	QY 67 ELTAVMRFLTQRLGPGLVDAAQARPSDNCVESVELQLPPKAAALAHLDRGSPPPAREALA 126	QY 7 LVLLILAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSRE 66 :- : ::: : :	Query Match 8.0%; Score 327; DB 2; Length 687; Best Local Similarity 21.6%; Pred. No. 1.2e-17; Matches 171; Conservative 113; Mismatches 314; Indels 194; Gaps 31;	** ** **	A;Cross-references: EMBL:AL138638 A;Experimental source: cultivar Columbia; BAC clone F23N14 C;Genetics: A;Map position: 3	A;Accession: T47403 A;Status: preliminary A;Molecule type: DNA A;Residues: 1-687 <blo></blo>	R;Bloecker, H.; Mewes, H.W.; Rudd, S.; Lemcke, K.; Mayer, K.F.X.; Quetier, F.; Salanoubd submitted to the Protein Sequence Database, March 2000 A;Reference number: Z24465	C; Apec.res: Arabicopsis Chairana (mouse-ear cress) C; Date: 20-Apr-2000 #sequence_revision 20-Apr-2000 #text_change 21-Jul-2000 C; Accession: T47403	-like protein - Arai ames: protein F23N1	Db 646 ELRPTNFFERNP 657	704 FLRPYNFFDEDD 715	Qy 654 WAPTVDESDEINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGF 703	Db 545 EVGYRL-IPAIPAHPLLFEDDYPQIRG-AFTNYNVWVTAYNRTEK 587
Qy 463 KSMSTLLNYDYWDTVFHPSGALEIRFYATGYISSAFLFGATGK	412 DWHELLESQAFKTIRDAFCVFEONOGLPLERHHSDLSHYEGGLAFFYLVF : : ::	353 RFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGV :: :	QY 301 SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDV- 352 :	Query Match 7.8%; Score 320; DB 2; Length 674; Best Local Similarity 25.8%; Pred. No. 4.3e-17; Matches 120; Conservative 66; Mismatches 189; Indels 90; Gaps 20;	F:130,389,389,Binding Site: Carbonydrade (ASH) (COVALENC) *Status predicted F:382,467,469/Binding Site: copper (His) *Status predicted F:412/Modified Site: topaquinone (Tyr) *Status experimental	C; Superiamity: amine oxidase (copper containing) C; Keywords: copper; glycoprotein; metalloprotein; oxidoreductase; quinoprotein; top F; 1-25/Domain: signal sequence #status predicted <sig> F; 26-674/Product: amine oxidase (copper-containing) #status predicted <mat> F: 26-674/Product: amine oxidase (copper-containing) #status predicted <mat></mat></mat></sig>	A; Molecule type: protein A; Residues: 409-417, 'X', 419 < JAN> A; Experimental source: seedling C: Superfamily: amine cyldaes (Copper Coptaining)		A;Molecule type: mRNA A;Residues: 1-674 <tip> A;Residues: 1-674 <tip> A;Cross-references: GB:L39931; NID:g685197; PID:g685198 R:Janges, S, M.: Palcic, M.M.: Scaman, C.H.: Smith, A.J.: Brown, D.E.: Dooley, D.M.:</tip></tip>	A;Title: Cloning and molecular analysis of the pea seedling copper amine oxidase. A;Reference number: A57327; MUID:95348126; PMID:7622512 A;Accession: A57327	C;Date: 31-Dec-1993 #sequence_revision 05-Jan-1996 #text_change 17-Mar-2000 C;Accession: A57327; C44239 R;Tipping, A.J.; McPherson, M.J. J. Biol. Chem. 270, 16939-16946, 1995	RESULT 15 C44239 amine oxidase (copper-containing) (EC 1.4.3.6) precursor - garden pea C;Species: Pisum sativum (garden pea)	01	Qy 715 PSFYSAD 721	Qy 656 PTVD-FSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDED 714 : : :	Qy 607 MLSFAGEPLPONSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWA 655	507 KORLPDGESRRKSYLKVKKYVAKTEKDAOIKMSLYDPYEFHLVNPNRLSRLGNPAGYKLV	VHDHEISFI NAFLVGSATI	

Sear Job 1	р _О у	B 5	ф	Qy Db
ch con	615	568	516	461
Search completed: May 20, 2003, 11:39:22 Job time : 33.4394 secs	671 GKDLVAMVTAGFLHIPHAEDIPNTVTVGNGVGFFLREYNFFDEDP 715 :	621 MARGESWEKYOLAVIQKKEEEPSSSSYFNQNDWAPTVDFSDETNNETIA 670 	516TESDAKITIGLAPAELVVVNPNIKTAVGNEVGYRL-IPAIPAHPLLTEDDYPQ 567	461 NSIGIYHDHFYIYYLDFDIDGTHNSFEKTSLKTVRIKDGSSKRKSYWTTETQTAK 515

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                          1400.5
                                                                 413
397.5
363
363
340
320
311.5
311.5
295.5
101.5
101.5
100.5
100.5
100.5
100.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-081-408-2
4095
                                                                                                                                                                                                                                                                                                                                                                                                          100
84
81
63
34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             112892 seqs, 41476328 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MNQKTILVLLILAVITIFAL.....QAAACAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          мау 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenCore version 5.1.5
Copyright (c) 1993 - 2003 Compus
                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2003, 08:02:28 ; Search time 18.01 Seconds (without alignments)
1757.161 Million cell updates/sec
   멂
AMO_LENCU
AMOL] ASPNG
AMO_PICAN
PUR4_XYLFA
DVL2_MOUSE
DVL2_HOUSE
DVL2_HOUNAN
FAS_HUMAN
FAS_HUMAN
FAS_HUMAN
ACFD_ECOLI
KICH_MOUSE
DIVJ_CAUCR
CAML_HUMAN
NIAL_PHAVAU
S3B3_HUMAN
DVL3_MOUSE
HEXA_BLADI
                                                                                                                                                                                                                                                                                         AOC2_HUMAN
ACC3_RAT
ABP_RAT
ABP_HUMAN
ANO_KLEAE
AMO_ECOLI
AMOH_ARTGO
AMO1_ARTGS1
AMO2_ARTGS1
AMO2_ARTGS1
AMO2_PEA
AMO_PEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AOCY_BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AOC3_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Compugen
P19801 homo sapien P49250 klebsiella P46883 escherichia O59118 arthrobacte Q07121 arthrobacte Q07121 arthrobacte Q07121 arthrobacte P46881 arthrobacte P46881 arthrobacte P49252 lens cullus P12807 pichia angu O59046 xylella fas Q60838 mus musculu O14641 homo sapien P12259 homo sapien P12600 bradyrhizob Q46837 escherichia O5480 mus musculu Q03228 caulobacter P32004 homo sapien P39805 phaseolis v O15393 homo sapien P1593 homo sapien P1594 homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                     016853 homo sapien
070423 mus musculu
046406 bos taurus
029437 bos taurus
075106 homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                       008590
P36633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Description ----
                                                                                                                                                                                                                                                                                                                                                                                                                       rattus norv
 88888888
                          between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
EMBL; U39447; AAC50919.1;
```

96. 2.4 1137 RIRL_HSVI1 96. 2.3 421 SYS_THETH 95.5 2.3 553 C865_ARACH 95.5 2.3 981 EPA3_BRARE 95.5 2.3 985 AGLU_ASSPING 95.5 2.3 2175 POLG_BOVEV 95.5 2.3 2175 POLG_BOVEV 96.5 2.3 2258 PEST_SPIG 94.5 2.3 901 VER_SPIG 94.5 2.3 1522 PSTL_SCHPO 94.5 2.3 1522 PSTL_SCHPO 94.5 2.3 2555 PPS3_BACSU 94. 2.3 2555 PPS3_BACSU 94. 2.3 492 SYVM_VERSU	2.4 1137 2.3 553 2.3 581 2.3 981 2.3 2175 2.3 2278 2.3 2258 2.3 2901 2.3 1522 2.3 1522 2.3 492 2.3 492 2.3 492
1137 1137 553 981 1 985 1 2175 1 2258 1 2258 1 1522 1 1522 1 2555 1 878 1	1137 1 R.FA1_HSV11 P08543 421 1 SYS_THETH P34945 553 1 C862_ARACH 023066 981 1 EPA3_BRARE 013146 985 1 AGIU_ASPNG P56526 2175 1 POLG_BOVEV P12915 2175 1 POLG_BOVEV 099147 901 1 VEF_GVPU P41723 1522 1 PS71_SCHPO Q09750 1522 1 PS73_BACSU P39947 492 1 SYYM_YEAST P48527 878 1 FIND_ECOLI P30130
<u> </u>	1 RIR1 HSV11 P08543 1 SYS_THETH P34945 1 C862_ARATH 023066 1 C862_ARATH 023066 1 AGLU_ASPNG P56526 1 POLG_BOVEV P12915 1 FAS_PIG P41723 1 VEF_GVPU P41723 1 PF3_BACSU P39947 1 SYYM_YEAST P48527 1 FIMD_ECOLI P30130
1 RIR1_HSV11 1 SYS_THETH 1 C862_ARATH 1 EPA3_BRARE 1 AGLU_ASPNG 1 POLG_BOVEV 1 FA5_PIG 1 VEF_GVPU 1 PST1_SCHPO 1 PST3_BACSU 1 SYYM_YEAST 1 FIMD_ECOLI	P0854 P34945 023066 011146 P56526 P12015 099171 P41723 P399750 P39877 P48527
RIRL_HSV11 SYS_THETH C862_ARATH EPA3_BRARE AGLU_ASPNG POLG_BOVEV FA5_PIG VEF_GVPU PST1_SCHPO PSS3_BACSU SYVM_YEAST FIND_ECOLI	P0854 P34945 023066 011146 P56526 P12015 099171 P41723 P399750 P39877 P48527

ALIGNMENTS

88				2 0							CC	3 8							R R					R i					S & S							ID A	RESULT 1	
This SWISS-P	-!- SIMILARI	-!- PTM: N-	-!- PIM: Top	ENDOTHELIA.	-!- TISSUE S	-	7	-! - COFACTOR:	H(2)0(2)	•	PERIPHER		J. Exp. Med.	nultifunctio	"Cloning of	Smith D.J.,	MEDLINE-98317014;	TACIFE LIDE.	[2] SEQUENCE FROM	Gene 179:279-286(1996).	containing m	"Cloning and	Zhang X., McIntire W.S.;	MEDLINE-9712	TISSUE-Placenta:	NCBI_TaxID=9606;	Mammalia; Eutheria;	Eukaryota; Metazoa; C	Homo saniens	L) (VAP-L) (HPAC).	Membrane copper amine			01-NOV-1997	716853.	AOC3 HUMAN	r 1	
SWISS-PROT entry is copyright. It i	SIMILARITY: BELONGS TO	autoxidation of a specific PTM: N- AND O-GLYCOSYLATED.	aquinone (TPQ)		PECIFICITY: MOS	LAR LOCATION: T		: Binds 1 copper	C WCITATII: WCH	ENT FASHION. HA	AL LYMPH NODE V	ATION BY MEDIAT	Med. 188:17-27(1998).	multifunctional adhesion molecule.";	vascular adhesi	Salmi M., Bono P., Hellman	7014; PubMed=96		-	-286(1996).	ída	and sequencing of a	Intire W.S.;	MEDLINE=97128319: PubMed=8972912:	acenta:		theria; Primates;	Eukaryota; Metazoa; Chordata;	· (Himan)	HPAO).	oxida	41, Last	35, Last	(Rel. 35, Created)		STANDARD:		
oyright. I	THE COPPER	fic tyrosy FED.	is generat	LEVILLENAT	F STRONGLY	ype II men		ion and	(2)HN(2)	S A MONOAN	ASCULAR EN	ING THE BI).	lecule.";	on protein	P., Hellma	53080;		PARTIAL SECUENCE				1	72912:			s; Catarrhini;						sequence update	ed)		PRT:		
It is produced through a collaboration	COPPER/TOPAQUINONE OXIDASE FAMILY.	l residue (By similarity).	PTM: Topaquinone (TPQ) is generated by copper-dependent	VENCHES OF FERTERERAL FIMEN NODES AND ON REFRIIC	EXPRESSED ON THE HIGH	SUBCELLULAR LOCATION: Type II membrane protein.	•	1 topaquinone per subunit.	H(2)U + U(2) = RCHU + NH(3) +	IINE OXIDASE ACTIVITY.	DOTHELIAL CELLS IN AN L-SELECTIN-	RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO	DARTICIDARE IN LYMPHOCYPE		1 reveals a novel	n J., Leu T., Jalkanen S.;			NO.		from human placenta.";	ontaining, topaquinone-					Hominidae;	a; Vertebrata; Euteleostomi;			(EC 1.4.3.6) (Vascular adhesion protein-	update)	pdate)			763 AA.		

ons on its in no way commercial

AF067406;

AAC25170

```
õ
                밁
                             δÃ
                                               밁
                                                             Qγ
                                                                                            õ
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                             밁
Š
                                                                               В
                                                                                                               В
                                                                                                                             õ
                                                                                                                                                           Ş
                                                                                                                                                                                            δã
                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                            밁
                                                                                                                                              В
                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Sim
Matches 763;
                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                               BINDING
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                              MOD_RES
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                        METAL
                                                                                                                                                                                                                                                                                                                                          SEQUENCE
541
                               481
                                                421
                                                                421
                                                                                361
                                                                                               361
                                                                                                               301
                                                                                                                                                                                                              121
                                                                                                                              301
                                                                                                                                                                             181
                                                                                                                                                                                                                              121
                                                                                                                                              241
                                                                                                                                                             241
                                                                                                                                                                                              181
                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                         MNQKTILVLLILAVITIFALVCYLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLF
                                                                                                                                                                                                          ADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPP 120
             APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                     YEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ
                                                                                                                      SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV
                                                                                                                                                    HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW
                                                                                                                                                                                   OMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL
AEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHP
                                              APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                                            SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV
                                                                                                                                           HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW
                                                                                                                                                                           QMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL
                                                                                                                                                                                                                                                                                                                   Similarity
                                                                           LQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ
                                                                                                                                                                                                                                                                                                                                         763
                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                         27
471
520
522
522
673
137
137
232
592
592
5066
                                                                                                                                                                                                                                                                                                                                         ĄΑ,
                                                                                                                                                                                                                                                                                                                                                         763
471
520
522
684
673
137
232
592
592
592
317
                                                                                                                                                                                                                                                                                                                  100.0%;
                                                                                                                                                                                                                                                                                                                                         84621
                                                                                                                                                                                                                                                                                                                                         MW;
                                                                                                                                                                                                                                                                                                                                                N-LINKED (GLCNAC...) (PO)
Y-> H (IN DBSNP:438287).
/FTId-VAR_012064
                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                 Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                              COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIGNAL-ANCHOR (TYPE-II MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPAQUINONE (BY
                                                                                                                                                                                                                                                                                                                                        58AD55605EC9D228 CRC64;
                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                         3 4095; DE ...
No. 1.3e-311;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                      ) (POTENTIAL).
) (POTENTIAL).
) (POTENTIAL).
) (POTENTIAL).
) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                        Gaps
                             540
                                                                             420
                                                                                                                                                            300
600
                                             480
                                                             480
                                                                                             420
                                                                                                             360
                                                                                                                           360
                                                                                                                                            300
                                                                                                                                                                            240
                                                                                                                                                                                          240
                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                        0
```

```
RESULT
AOC3_MC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                   InterPro; IPR000269; CuNH_oxidase.

Pfam; PF01779; Cu_amine_oxid(); 1.

Pfam; PF02727; Cu_amine_oxid(); 1.

Pfam; PF02728; Cu_amine_oxid(); 1.

Pfam; PF02728; Cu_amine_oxid(); 1.

PRINTS; PR00766; CUDAOXIDASE.

PROSITE: PS01164; COPPER_AMINE_OXID_1; 1.

PROSITE: PS01165; COPPER_AMINE_OXID_2; 1.

Oxidoreductase; Copper; TPO; Glycoprotein; Traces of the company of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.

STRAIN-BALB/C, and 129/SvJ;

MEDLINE-98414290; PubMed-9743358;

MEDLINE-98414290; PubMed-9743358;

Bono P., Salmi M., Smith D.J., Leppanen I., Horelli-Kuitunen N.,

Palotie A., Jalkanen S.;

"Isolation, structural characterization, and chromosomal mapping of the mouse vascular adhession protein-1 gene and promoter.";

J. Immunol. 161:2953-2960(1998).

-!- FUNCTION: CELL ADHESION PROTEIN THAT PARTICIPATE IN LYMPHOCYTE RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO PERIPHERAL LYMPH NODE VASCULAR ENDOTHELIAL CELLS IN AN L-SELECTIN-

INDEPENDENT FASHION. HAS A MONOAMINE OXIDASE ACTIVITY.

-!- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO + NH(3) +
Oxidoreductase; Copper; Signal-anchor; Cell adhe DOMAIN 1 6
                                                                                                                                                                                                       EMBL; AF054831; AAC23747.1; -.
EMBL; AF078705; AAC35839.1; -.
MGD; MGI:1306797; Aoc3.
InterPro; IPR000269; CuNH_oxid;
Pfam; PF01179; Cu_amine_oxid;
                                                                                                                                                                                                                                                                                                                                                                                              use by non-profit institutions as long modified and this statement is not removed entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-JUL-2002 (Rel. 41, Last annotation update)
Membrane copper amine oxidase (EC 1.4.3.6) (Vascular adhesion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AOC3_MOUSE
070423;
                                                                                                                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AOC3 OR VAP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (VAP-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the Eleuropean Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit. SUBUNIT: HOMODIMER (BY SIMILARITY).
SUBCELLULAR LOCATION: Type II membrane protein.
PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity).
PTM: N- AND O-GLYCOSYLATED (BY SIMILARITY).
SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   H(2)O(2).
COFACTOR: Binds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      765
                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                      J as 1.
Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                   its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        763
                                                                                                                                                                                                                                                                                                                                                                                                                          Ьy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TEMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ıs
                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                                                                                                                        о
С
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
```

Š

```
Query Match
Best Local Similarity
Matches 634; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              METAL
BINDING
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN
MOD_RES
                                                                                                      601
                                                                                                                              601
                                                                                                                                                      541
                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                     661
                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHP
                                                                                                                                                                                                                                                     RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                    PSGAIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW
                                                                                                                                                                                                                                                                                                                                                                     SLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV
                                                                                                                                                                                                                                                                                                                                                                                                                      HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                       DSIYERGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSH
                                                   TDFISNETIAGEDLVAWVTAGFLHIPHAEDIPNTVTAGNSVGFFLRPYNFFDEDPSFHSA
                                                                SDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFELRPYNFFDEDPSFYSA
                                                                                                   AEDMAFVPTIVPWQPEYQMQRLQVTRKLLETEEEAAFPLGGATPRYLYLASNHSNKWGHR
                                                                                                                                                                                                       PNGATEVKFHATGYISSAFFFGAGEKFGNRVGAHTLGTVHTHSAHFKVDLDVAGLKNWAW
                                                                                                                                                                                                                                                                                                                                                         SLKSSVPPGPAPPLQFHPQGPRFSVQGSQVSSSLWAFSFGLGAFSGPRIFDIRFQGERVA
                                                                                                                                                                                                                                                                                                                                                                                                         HPIGLELLIDHKALDPALWTIQKVFYQGRYYESLTQLEDQFEAGLVNVVLVPNNGTGGSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         765
471
520
522
684
673
137
232
294
294
592
659
666
84533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84.8%;
83.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΜW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EXTRACELULAR (POTENTIAL).

TOPAQUINONE (BY SIMILARITY).

COPPER (POTENTIAL).

COPPER (POTENTIAL).

COPPER (POTENTIAL).

AMILORIDE (BY SIMILARITY).

N-LINKED (GLCNAC...) (POTENT.

N-LINKED (GLCNAC...) (POTENT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 3473; DB 1;
Pred. No. 4.5e-263;
1; Mismatches 67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIGNAL-ANCHOR (TYPE-II MEMBRANE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL).
) (POTENTIAL).
) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      765;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROTEIN)
                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                     660
                                                                                                                                                      600
                                                                                                                                                                                                      540
                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
Ş
```

δ

В õ 밁 Š 밁 Ş ₽

ð 밁 Š 밁 δ 밁

맑

₽

14

Conservative

46;

Indels

10;

Gaps

2

62

밁

δ 밁 γQ 밁 Ş 문

õ

```
Query Match
Best Local Sin
Matches 620;
                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000269; CuNH_oxidase.

Pfam; PF01179; Cu_amine_oxid; 1.

Pfam; PF02727; Cu_amine_oxidN2; 1.

Pfam; PF02728; Cu_amine_oxidN3; 1.

PFNINTS; PR00766; CUDAOXIDASE.

PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.

Oxidoreductase; Copper; TPQ; Glycoprotein; Si
SIGNAL 1 16

POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LBOVIN
AOCY_I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AOCY_BOVIN
046406;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41)
15-JUN-2002 (Rel. 38, Created)
15-JUL-1999 
                                                                                      BINDING
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                          CHAIN
MOD_RES
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pec
Bovidae; Bovinae; Bos.
NCBI_TaxID-9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Vuust J.;
"Structure and tissue-specific expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           use by non-profit institutions as lone modified and this statement is not remove entitles requires a license agreement (SC or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     copper amine oxidases.";
Eur. J. Biochem. 251:320-328(1998).
-!- CATALYTIC ACTIVITY: RCH(2)NH(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hogdall
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE-Lung;
MEDLINE-98151264;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; Y15774; CAA75776.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H(2)0(2).
COFACTOR: Binds 1 copper ion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBCELULAR LOCATION: Extracellular (By similarity).
TISSUE SPECIFICITY: LUNG, SPLEEN, HEART, KIDNEY.
PTM: Topaquinone (TPQ) is generated by copper-dependent
autoxidation of a specific tyrosyl residue (By similarity).
SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   similarity).
ENZYME REGULATION: INHIBITED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (BY SIMILARITY)
                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    E.V.S.,
                                                                                        17
519
521
521
672
136
136
617
762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Houen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PubMed=9492300;
buen G., Borre M
                                                                                                             762
470
519
521
683
672
136
672
231
6617
                                                                                           84883
                      81.7%;
81.9%;
                                                                                           MW;
                                                                                 COPPER AMINE OXIDASE, LUNG ISOZYME.
TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILARITY).
AMILORIDE (BY SIMILARITY).
N-LINKED (GLCNAC. . .) (POTENTIAL).
Score 3346; DB 1;
Pred. No. 3.6e-253;
5; Mismatches 81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BY AMILORIDE IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    removed. Usage by and foent (See http://www.isb-sib.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       + H(2)0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bundgaard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of genes
                                                                                                                                                                                                                                                                                                                                                                            Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    J.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pecora;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.4.3.6)
                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPETITIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              per subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Larsson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RCHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    L.-I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bovine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (Ву
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MANNER
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                         RESULT
             TISSUE-Liver;
MEDLINE-94193886; PubMed-8144587;
MU D., MedZihradszky K.F., Adams G.W., Mayer
Burlingame A.L., Smith A.J., Cai D., Klinman
"Primary structures for a mammalian cellular
                                                                                                                                        029437.
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Copper amine oxidase, liver isozyme precursor
oxidase [copper-containing]) (Serum amine oxid
                                                                                               Bovidae; Bovinae; Bos.
NCBI_TaxID=9913;
                                                                                                                   Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                        SEQUENCE FROM N.A.,
                                                                                                                                                                                                                    AOCX_BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                         723
                                                                                                                                                                                                                                                                                              724
                                                                                                                                                                                                                                                                                                                                                                                   604
                                                                                                                                                                                                                                                                                                                                                                                                                                                  483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64
                                                                                                                                                                                                                                                                                                                                                                      RIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDF
                                                                                                                                                                                                                                                                                                                                                                                                                MVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YFRGDQDAGACEVNHLACLPQAAACAPDLPAFSHGGF 760
                                                                                                                                                                                                                                                                                                                INNETIAGKOLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDQEPSMDSADSI
                                                                                                                                                                                                                                                                                                                             INNETIAGKDLVAMVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSI
                                                                                                                                                                                                                                                                                                                                                                                                     MAFVPTTVPWSPEHQIQRLQVIRKQLETEEQAAFPLGGGSPRYLYLASKQSNKWGHPRGY
                                                                                                                                                                                                                                                                                                                                                                                                                                              TIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SQVPPGPTPPLQFHPQGTRFSVQGSRVTSSLWTFSFGLGAFSGPRIFDIRFQGERLAYEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLELLVDHKALDPAQWTIQKVFFQGRYYESLVQLEEQFEAGRVNVVVIPNNGTGGSWSLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLELLVNHKALDPARWTIQKVEYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FNRELPQAAGVLHHCCSYKQGGGNLVTMTTAPPGLQSGDRATWFGLYYNISKAGYYLHPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALAIVFFGGQPQPNVTELVVGPLPQPSYMRDVTVERHGGPLPYYRHTVLLREYLDIDQMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RIQTVSFAGRPLPQNSSTERAISWGRYQLAVTQRKETEPSSSSVFNQNDPWTPTVDFADF
269:9926-9932(1994)
                                                                                                                                                                                                                    STANDARD;
                                                                                                                  Chordata; Craniata; Vertebrata;
Cetartiodactyla; Ruminantia; Pec
                                                                          AND
                                                                         PARTIAL
                                                                                                                                                                                                                    PRT;
                                                                          SEQUENCE
                                                                                                                                                  precursor (EC 1 amine oxidase)
                                                                                                                                                                                                                    762
                                                                                                                                                                                                                   ጅ
                    J.P
and
                     serum
                                       Hines
                                                                                                                                                   1.4.3.6) (Amine) (SAO).
                                                                                                                              Euteleostomí;
                                          Σ
                                                                                                                  Bovoidea;
                     amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             123
                                                                                                                                                                                                                                                                                                                                                           662
                                                                                                                                                                                                                                                                                                                                                                               663
                                                                                                                                                                                                                                                                                                                                                                                                                         603
                                                                                                                                                                                                                                                                                                                                                                                                                                                542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
```

```
δÃ
                                                                                                                                                                                                   Š
                         밁
                                           δ
                                                                         B
                                                                                               δÃ
                                                                                                                          밁
                                                                                                                                                                            밁
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; S69583; AAB30397.1; -.

EMBL; L27218; AAA30525.1; -.

InterPro; IPRO00269; CUM-Loxidase.

Pfam; PF02179; CU_amine_oxidN2; 1.

Pfam; PF02727; CU_amine_oxidN3; 1.

Pfam; PF02728; CU_amine_oxidN3; 1.

Pfam; PF02728; CU_amine_oxidN3; 1.

PRINTS; PR00766; CUDAOXIDASE.

PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.

Oxidoreductase; Copper; TPQ; Glycoprotein; Si
                                                                                                                                                                                                                                                                                                                                         METAL
BINDING
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
MOD_RES
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 amine oxidases.";
Biochemistry 31:12147-12154(1992)
-!- CATALYTIC ACTIVITY: RCH(2)NH(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         [2]
PARTIAL SEQUENCE.
MEDLINE-93090748; PubMed-1457410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Janes S.M., Palcic M.M., Scaman C.H., Dooley D.M., Mure M., Kilnman J.P.; "Identification of topaquinone and it:
                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- COFACTOR: Binds
                                                                                                                            123
 304
                                                                         183
                                                244
                                                                                                 184
                                                                                                                                                   124
                                                                                                                                                                            63
                                                                                                                                                                                                    64
                                                                                                                                                                                                                                            14 VITIFALVCVLLVGR--GGDGGE------PSQLPHCPSVSPSAQPWTHPGQSQLFADL
                                                                                                                                                                                                                             w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENZYME REGULATION: INHIBITED BY AMIL SUBCELLULAR LOCATION: Extracellular TISSUE SPECIFICITY: LIVER.
                                                                                                                        GLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLK
                                                                        FNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHV
                                                                                                                                                                                        SREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPARE
SPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEI
                                                                                                                                                                            SREELTTVMSFLTQQLGPDLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPARE
                                                                                                                                                                                                                             IF IFLSLWTLLVMGREEGGVGSEEGVGKQCHPSLPPRCPSRSPSDQPWTHPDQSQLFADL
                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                17
470
519
521
683
672
136
231
665
                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                A
K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Copper;
                                                                                                                                                                                                                                                                                                                        762
470
519
521
683
672
136
231
665
84756
                                                                                                                                                                                                                                                                                          81.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           copper ion and 1 topaquinone: INHIBITED BY AMILORIDE IN A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RCH(2)NH(2) +
                                                                                                                                                                                                                                                                                                                                MW:
                                                                                                                                                                                                                                                                             61;
                                                                                                                                                                                                                                                                                                                                        TOPAQUINONE (BY SIMILARITY)
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILARITY).
N-LINKED (GLCNAC...) (POT
N-LINKED (GLCNAC...) (POT
N-LINKED (GLCNAC...) (POT
                                                                                                                                                                                                                                                                             Score 3334; D
Pred. No. 3.1e
51; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                            COPPER AMINE
                                                                                                                                                                                                                                                                                                                               AA959771360295FE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H(2)0 + O(2) -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Smith A.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       consensus
                                                                                                                                                                                                                                                                                          le-252;
                                                                                                                                                                                                                                                                                                      DB
                                                                                                                                                                                                                                                                                                                                                                                                                                  (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Signal; Metal-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence
                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Brown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            per subunit
                                                                                                                                                                                                                                                                                                                                         ) (POTENTIAL).
) (POTENTIAL).
) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RCHO +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              U
                                                                                                                                                                                                                                                                                                                                                                                                                                              ISOZYME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'n
                                                                                                                                                                                                                                                                             10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    copper
                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                 183
                                                                                                                                                                                                   123
                                                                                                                                                                                                                             62
                                                303
                                                                        242
                                                                                                 243
                                                                                                                          182
                                                                                                                                                                           122
                                                                                                                                                                                                                                                    63
                                                                                                                                                                                                                                                                             <u>ب</u>
```

```
A RESIDENCE OF THE PROPERTY OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AOC2_HUMAN STANDARD; PRT; 756 AA 075106; 075105; 000120; QUUNYO; 15-JUL-1999 (Rel. 38, Created) 15-JUL-1999 (Rel. 38, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Retina-specific copper amine oxidase precur (Amine oxidase [copper-containing]).
Zhang X., McIntire W.S.;

"Human copper-containing amine oxidases.";

"Human copper-containing amine oxidases.";

Submitted (JUI-1998) to the EMBL/GenBank/DDBJ databases.
-!- FUNCTION: MAY BE A CRITICAL MODULATOR OF SIGNAL TRANSMISSION RETINA, POSSIBLY BY DEGRADING THE BIOGENIC AMINES DOPAMINE,
HISTAMINE, AND PUTRESCINE.
-!- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) = RCHO + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Imamura Y., Kubota R., Wang Y., Asakawa S., Oguchi Y., Shimizu N.;
"Human retina-specific amine oxidase (RAO): expression, and chromosomal mapping.";
Genomics 40:277-283(1997).
                                                                                                                                                                                                                                                                                                         Imamura Y., Noda S., Mashima Y., Kudoh J., Oguchi Y., Shimizu "Human retina-specific amine oxidase: genomic structure of the (AOC2), alternatively spliced variant, and mRNA expression in retina.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE-Recting,
MEDLINE-97237047; PubMed-9119395;
Tmamura Y., Kubota R., Wang Y., A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                Genomics 51:293-298(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=9606;
                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A., MEDLINE-98390194; P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLAIYVDWHFLLESQAPK 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SQVPPGPTPPLQFHPQGPRFSVQGNRVASSLWTESFGLGAFSGPRVFDVRFQGERLAYEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YFREGQDAGSCEINPLACLPQAATCAPDLPVFSHGGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDQEPSMDSADSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SLQEAGAVYGGNTPAAMLTRYMDSGFGMGYFATPLIRGVDCPYLATYMDWHFVVESQTPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Human).
etazoa; Chordata; Craniata; Vertebrata;
etheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                        ., AND ALTERNATIVE SPLICING PubMed=9722954;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kudoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cloning, tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.4.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Euteleostomi;
; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mashima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .
6
                                                                                                                                                                                                                                                                                                                                                           the gene
           NH(3)
                                                                                                                                                                                                                                                                                                                                                                                          z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         362
```

밁 Ş В Š 밁 Qy 밁

177 181 117 121 57 61

RHLKDVELPKAPIFLSST-

AREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDID 180

AREALAIVLFGGQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLRAEFTQMW

QMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL

240 176

234

-- FNYNGSTLAAVHATPRGLRSRERTTWMALYHNISGVGLFL

ADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPP 120

ADLSREELTAVMRFLTQRLGPGLVDAAQAQPSDNCIFSVELQLPPKAAALAHLDRGSPPP

116

MHLKIVLAFLALSLITIFALAYVLLTSPGGS----SQPPHCPSVSHRAQPWPHPGQSQLF 56

Ş 밁 δõ 밁 Ş В Ş

밁

δÃ

₽

Š

밁 õ 밁

밁

```
δ
                                  Matches
                                            Query Match
Best Local
                                                                              BINDING
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARSPLIC
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                    CHAIN
MOD_RES
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the European Bioinformatics Institute. There use by non-profit institutions as long a modified and this statement is not removed. I entities requires a license agreement (See httor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWI
                                                                                                                                                                                                                                                                                                                           Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN3; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PRINTS; PR00766; CUDAOXIDASE.
PROSITE; PS01164; COPPER_AMINE_OXID_1;
PROSITE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                           Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; AB012943; BAA32589.1;
EMBL; AB012942; BAA32589.1;
EMBL; D80213; BAA19001.1; -
EMBL; AF081363; AAD39345.1;
Genew; HGNC:549; AOC2.
                                                                                                                                                                                                                                                                                                               Oxidoreductase;
                                                                                                                                                                                                                               METAL
                                                                                                                                                                                                                                           METAL
                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000269; CuNH_oxidase
                                                                                                                                                                                                                                                                                                                                                                                                               MIM; 602268;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   H(2)0(2).

COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit.

COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit.

ALTERNATIVE PRODUCTS: AT LEAST 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING. TISSUE SPECIFICITY: RETINAL-SPECIFIC.

PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity).

SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
MNQKTILVLLILAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SWISS-PROT entry is copyright. It is produced through a collable en the Swiss Institute of Bioinformatics and the EMBL outst
European Bioinformatics Institute. There are no restrictions by non-profit institutions as long as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AB012943; BAA32590.1;
AB012942; BAA32590.1;
                                             Similarity
                                                                                                                                                                                                                                                                                                       Metal-binding
                                                                                Conservative
                                                                                 8
                                                                            Copper;
                                            63.8%;
65.0%;
                                                                                 Œ,
                                                                            AMILORIDE (BY SIMÍLARITY).

N-LINKED (GLCNAC. . .) (POTEN MISSING (IN SHORT ISOFORM).

D -> E (IN REF. 3).

RERT -> GDRA (IN REF. 3).

MA -> IG (IN REF. 3).

MA -> IG (IN REF. 3).

MA -> 1G (IN REF. 3).
                                 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOINED
                                                                                                                                                                                                                      TOPAQUINONE (BY SIMILARITY).

COPPER (POTENTIAL).

COPPER (POTENTIAL).

COPPER (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOINED
                                           Score 2612; DB 1;
Pred. No. 6.6e-196;
                                                                                                                                                                                                                                                                                                               Alternative splicing;
                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 topaquinone per subunit.
ISOFORMS; A LONG FORM (SHOWN
UCED BY ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (See http://www.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Usage
                                                                                                                                                                                          .) (POTENTIAL).
.) (POTENTIAL).
                                                       Length
                               Indels
                                                                                                                                                                                                                                                                                                                 Glycoprotein;
                                                                                                                                                                  (POTENTIAL).
                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .isb-sib.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for
                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .ch/announce/
                                 Gaps
          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                 Ψ
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
MEDIATION BY MEDIATING THE BINDING OF LYMPHOCYTE RECIRCULATION BY MEDIATING THE BINDING OXIDASE ACTIVITY.

**ITSUB=*Aulput**

Johen A., Guven S., Hays J.;

Johen A., Guven S., Hays J.;

"The major integral membrane glycoprotein in adipocytes 1...

"The major integral membrane glycoprotein in adipocytes 1...

**ITSUB-**

**ITSUB-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Membrane copper amine oxidase (EC 1.4.3.6) (Vascular
1) (VAP-1) (VP97) (Bragment)
Rattus norvegicus (Rat)
                                                                                                                                                                                                                                                                 SEQUENCE OF 1-19.
TISSUE-Adipocyte;
MEDLINE-96010417;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A., AND PARTIAL SEQUENCE STRAIN-Sprague-Dawley; TISSUE-Adipocyte; MEDLINE-97238878; PubMed-9083076; MOTTIE N T FROM THE NEW TOWNS TO THE NEW TOWNS TO THE NEW TOWNS TOWNS TOWNS TOWNS TOWNS TOWNS TOWNS TOWNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Morris N.J., E
Lienhard G.E.;
                                                                                                                                                                                                                                                                                                                                                             "Membrane amine oxidase cloning and in the adipocyte plasma membrane."; Diol. Chem. 272:9388-9392(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSSVFNQNDPWAPTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSGAIEIRFYATGYISSAFLFGATG--KYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AVQLLPGAVCVFEEAQGLPLRRHHNYLQNHFYGGLASSALVVRSVSSVGNYDYIMDFVLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SADSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VVAEDVVFKPVAAPWNPEHWLQRPQLTRQVLGKEDLTAFSLGSPLPRYLYLASNQTNAWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HQRGYRIQIHSPLGIQIPLESDMERALSWGRYQLVVTQRKEEESQSSSIYHQNDIWTPTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PNGALEGRVHATGY INTAFLKGGEEGLLFGNRVGERVLGTVHTHAFHFKLDLDVAGLKNW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YEVSVQECVSIYGADSPKTMLTRYLDSSFGLGRNSRGLVRGVDCPYQATMVDIHILVGKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HPVGLELLLDHRALDPAHWTVQQVFYLGHYYADLGQLEREFKSGRLEVVRVPLPPPNGAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ducret
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Aebersold
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                    R., Ross
                                                                                                                                                                                                                                                                                                                                                                                                           identification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                       S.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        760
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Keller
                                                                                                                                                                                                                                                                                                                                                                                                           as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           adhesion
                                                                                                                                                                                                                                                                                                                                                                                                           ø
                                                                                                                                                                                                                                                                                                                                                                                                           major protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   598
```

```
RESULT 7
ABP_RAT
ID ABB
AC P36
DT 01-
DT 01-
DT 15-
DE Ami
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 267
ABP_RAT STANDA
P36633;
01-JUN-1994 (Rel. 29,
01-JUN-1994 (Rel. 29,
15-JUN-2002 (Rel. 41,
Amiloride-sensitive a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
CARBOHYD
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWI
between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oxidoreductase; Cuppo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro, IPRO00269; CUNH_OXIdase.
Pfam; PF02727; CU_amine_OXidN2; 1.
Pfam; PF02728; CU_amine_OXidN3; 1.
Pfam; PF02728; CU_amine_OXIDASE.
PRINTS; PR00766; CUDAOXIDASE.
PROSTTE; PS01164; COPPER_AMINE_OXID_1; PARTIAL.
PROSTTE; PS01164; COPPER_AMINE_OXID_2; PARTIAL.
OXIDOREGUCTASE; COPPER; TPO; Glycoprotein; Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   use by non-profit institutions as long a modified and this statement is not removed. entitles requires a license agreement (See lor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                    303
                                                                                                                                                                                                                                                                                                                242
                                                                                                                                                                                                                          302
                                                                                                                                                                                                                                                                                                                                                          243
                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                  183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
nes 267; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit. SUBGUNIT: HOMODIMER.
SUBCELLULAR LOCATION: Type II membrane protein.
SUBCELLULAR LOCATION: Type II membrane protein.
PTM: Topaquinone (TPO) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity).
PTM: N- AND O-GLYCOSYLATED (BY SIMILARITY).
SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                 KSPVPPGPAPPLQFYPQGPR
                                                                                                                                                                                                                                                                                                                                     IFNRELPQASGLLHHCCFYKHRGRNLYTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EALAIVEFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LSPEELTAVMSFLIKHLGPGLVDAAQARPSDNCVFSVELQLPAKAAALAHLDRGGPPPVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LSREELTAVWRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAR 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QKTILVLLILAVITIFALVCVLLVGRGGDGGEPSOLPHCPSVSPSAQPWTHPGQSQLFAD
                                                                                                                                                                                                                        KSSVPPGRAPPLQFHPEGPR
                                                                                                                                                                                                                                                                                                              IGLELLVDHKALDPALWTIQKVFYQGRYYESLTQLEDMFEAGLVNVVLVPDNGTGGSWSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EALAIIFFGGQPKPNVSELVVGPLPHPSYMRDVTVERHGGPLPYYRRPVLTREYQDIQEM
                                                                                                                                                                                                                                                                                                                                                                                                      IFHRELPQASGLLHHCCFYKRQGHNLLKMTTAPRGLQSGDRATWFGIYYNLSGAGFYPHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           U72632; AAC53189.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27
136
231
293
321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA;
                                                                                                             STANDARD;
                    29,
29,
41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         >321
136
231
293
321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               adhesion; Metal-binding.
    amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       35116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34.6%;
                    Last sequence up
                                                                                                                                                                                                                                                                    322
    oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1418; DB 1;
Pred. No. 2.9e-103;
8; Mismatches 35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EXTRACELLULAR (POTENTIAL)
N-LINKED (GLCNAC. . .) (PO
N-LINKED (GLCNAC. . .) (PO
N-LINKED (GLCNAC. . .) (PO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CYTOPLASMIC (POTENTIAL).
SIGNAL-ANCHOR (TYPE-II MEMBRANE (POTENTIAL).
                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6B1F294253A1DE6F
[copper-containing]
                                         update)
                                                                                                          746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLCNAC . . .)
(GLCNAC . . .)
(GLCNAC . . .)
                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      There are no rest
                                                                                                             ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 γď
precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             321;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROTEIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                30
                                                                                                                                                                                                                                                                                                                                                        302
                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
S
                                            밁
                                                                   δÃ
                                                                                                 Query Match
Best Local S
Matches 300
                                                                                                                                                      BINDING
BINDING
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lingueglia E., Renard S., Voilley N., Waldmann R., Lazdunski M., Barbry P.;
"Molecular cloning and functional expression of difforms of rat amiloride-binding proteins.";
Eur. J. Biochem. 216:679-687(1993).
-1- FUNCTION: CATALYZES THE DEGRADATION OF COMPOUNI PUTRESCINE OR HISTAMINE.
-1- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2)
                                                                                                                                                                                                                                                     METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR000269; CuNH_oxidase. Pfam; PF01179; Cu_amine_oxid0; 1. Pfam; PF02727; Cu_amine_oxid0x; 1. Pfam; PF02728; Cu_amine_oxid0x3; 1. Pfam; PF02766; CUDAOXIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        use by non-profit institutions as long a modified and this statement is not removed. entitles requires a license agreement (See lor send an email to license@isb-slb.ch).
                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X73911; CAA52116.1;
EMBL; X73912; CAA52117.1;
PIR; S34656; S34656.
PIR; S36847; S36847.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN-Wistar; TISSUE-Colon, and MEDLINE-93387321; PubMed-8375402;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                             MOD_RES
                                                                                                                                                                                                                                                                                                                                                                  Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (EC 1.4.3.6) (Diamine (ABP) (Histaminase).
                 78
                                                                       18
                                            տ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     H(2)O(2).
COFACTOR: Binds 1 copper ion and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBCELLULAR LOCATION: Extracellular.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUBUNIT: HOMODIMER; DISULFIDE-LINKED.
FALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGGSQLFADLSREELTAVWRFTTQ
                                           FGWAAVILVLQTVDTASAVRTPY------DKARVFADLSPQEIKAVHSFLMN
                                                                                                                                                                                                                                                                                                                                                               Glycoprotein; Oxidoreductase; Copper;
                                                                                                            Similarity
                                                                                                 Conservative
                                                                                                                                                                                   456
505
507
670
670
570
570
533
                                                                                                            34.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oxidase)
                                                                                                                                                       Ĭ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALT_INIT
                                                                                                                                                                COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
HEPARIN (BY SIMILARITY).
AMILORIDE (POTENTIAL).
N-LINKED (GLCNAC...) (PO
N-LINKED (GLCNAC...) (PO
N-LINKED (GLCNAC...) (PO
N-LINKED (GLCNAC...) (PO
                                                                                                Score 1400.5; DB 1;
Pred. No. 2.2e-101;
11; Mismatches 280;
                                                                                                                                                                                                                                                                                          TOPAQUINONE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                        AMILORIDE-SENSITIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; E
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                       [COPPER-CONTAINING]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (DAO) (Amiloride-binding
                                                                                                                                                      6C564D044D07BCB2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          fung;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPOUNDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Usage
                                                                                                                                                                                                                                                                                                                                                             Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    different molecular
                                                                                                                                                                                                                                                                                                                     AMINE OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       per
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1
                                                                                                                         Length
                                                                                                                                                                (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chassande
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RCHO + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUCH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein)
                                                                                                                         746;
                                                                                                57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for
                                                                                              Gaps
                                                                      77
                                                                                                14;
```

```
γQ
                                                                                                                                     밁
                                                                                                                                                                                                 B
                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
   밁
                                δÃ
                                                                   밁
                                                                                                                                                                δÃ
                                  712
                                                                                                                                                                                                     518
                                                                                                                                                                                                                                                                                                                                                                                                     338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       51
                                  DEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGG
                                                                                   PWAPTVDFSDFI-NNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFF
                                                                                                                                                      HSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQND
                                                                                                                                                                                                AGTKNSFQTLTMKLENLTNPWSPSHSLVQPTLEQTQYSQEHQAAFRFGQTLPKYLLFSSP
                                                                                                                                                                                                                                                                 YYDSDGPVHYPHALCLFEMPTGVPLRRHENSNFKGGFNFYAGLKGYVLVLRTTSTVYNYD
                                                                                                                                                                                                                                                                                                                                                                  LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS - - - HYFGGLAETVLVVRSMSTLLNYD
                                                                                                                                                                                                                                                                                                                                                                                                 GERVAYEVSVQEAVALYGGHTPAGMQTKYIDVGWGLGSVTHELAPGIDCPETATFLDAFH
                                                                                                                                                                                                                                                                                                                                                                                                                      GERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HGSTDVQDWRVEQLWYNGKFYNNPEELARKYAVGEVDTVVLEDPLPNGTE-----KPPLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----CCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VTEFAVGPLPRPYYIRALS-PRPGHHLSWSSRPISTAEY----DLLYH-TLKRATMPLHQ
                                                                   PWDPPVVFEEFLRNNENIEDEDLVAWVTVGFLHIPHSEDVPNTATPGNSVGFLLRPFNFF
                                                                                                                                     QKNCWGHRRSYRLQIHSMAEQVLPPGWQEERAVTWARYPLAVTKYRESERYSSSLYNQND
                                                                                                                                                                                                                                  AGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SSYKPRGEFHTPVNVAGPHVVQPSGPRYKLEGNTVLYGGWSFSYRLRSSSGLQIFNVLFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HKALDPARWTIOKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPD---NGTGGSWSLKSPV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FFLDTTGFSFLGCDDRCLTFTDVAPRGVASGQRRSWFIVQRYVE--GYFLHPTGLEILLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REELGLQPSKEPTLAKNSVFLIEMLLPKKKHVLKFLDEGRKGPNREARAVIFFGAQDYPN
PEDPSLASRDTVIV-WPQDKGLNRVQ--RWIPEDRRCLVS-PPFSYNG
                                  759
                                                                697
                                                                                                                                     637
                                                                                                                                                                                                                                    592
                                                                                                                                                                                                                                                                                                                                   457
                                                                                                                                                                                                                                                                                                                                                                                                   397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     164
                                                                                                                                                                                                   577
                                                                                                                                                                                                                                                                   517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     222
```

```
[1]
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE-94237856; PubMed-8182053;
Chassande O., Renard S., Barbry P., Lazdunski M.;
"The human gene for diamine oxidase, an amiloride binding Molecular cloning, sequencing, and characterization of the minal chem. 269:14484-14489(1994).
                                                                                                                                                                                                                                                                                                                                                                      HUMAN
                                                                                                                                                                                                                                            P19801: Q16683; Q16684:
01-FEB-1991 (Rel. 17, Created)
01-JUN-1994 (Rel. 29, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Amiloride-sensitive amine oxidase [copper-containing] precursor (EC 1.4.3.6) (Diamine oxidase) (DAO) (Amiloride-binding protein)
(ABP) (Histaminase)
SEQUENCE FROM N.A TISSUE-Placenta; MEDLINE-96113540;
                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                      ABP_HUMAN
                                                                                                                                                                   NCBI_TaxID=9606;
                                                                                                                                                                                                                                 ABP1 OR DAO1 OR AOC1.
                                                                                                                                                                                                              (Human)
                                                                                                                                                                                                                                                                                                                                                    STANDARD;
 PubMed-8595053;
                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                    751
                                                                                                                                                                                                                                                                                                                                                    ₿
                                                                                                                                                                                   Euteleostomi; Homo.
                                                                          the
                                                                                                                                                                                                                                                           protein)
                                                                          protein.
promoter.";
```

11;

```
entities
or send a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    J. Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Novotny W.F., Chassande O., Baker M., Lazdunski M., "Diamine oxidase is the amiloride-binding protein a amiloride analogues.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biochem.
      METAL
BINDING
BINDING
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the European Bioinformatics Institute. They use by non-profit institutions as long a modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its the Duropean Bioinformatics Institute. There are no restrictions on its use of the property institutions as long as its content is in no way use the property institutions as long as its content is in no way use the property institutions as long as its content is in no way use the property institutions as long as its content is in no way use the property institutions as long as its content is in no way use the property institutions as long as its content is in no way use the property institutions as long as its content is in no way use the property institutions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Human kidney amiloride-binding expression.";
                                                                   MOD_RES
METAL
METAL
                                                                                                                                                                           PRINTS; PROUVES, COPPER_AMINE_OXID_1; 1.

PROSITE; PSO1164; COPPER_AMINE_OXID_2; 1.

PROSITE; PSO1165; COPPER_AMINE_OXID_2; 1.

Signal; Glycoprotein; Oxidoreductase; Copper; Hepa
                                                                                                                                                                                                                                              InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PRINTS; PR00766; CUDAOXIDASE.
                                                                                                                                                                                                                                                                                                                                                                                           EMBL; V78212; CAA55046 1; -.
EMBL; U11862; AAC50270.1; -.
EMBL; U11863; AAB60381.1; -.
EMBL; M55602; AAA58358.1; AL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-94193685; PubMed-8144586;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 20-39,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Barbry P., Champe M., Chassande O.
Lingueglia E., Maes P., Frelin C.,
                                                                                                                     METAL
                                                                                                                                                                                                                                                                                                                                                             PIR; A38276; A38276.
PIR; S42495; S42495.
                                                                                                                                                                                                                                                                                                                               MIM; 104610;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE-Kidney;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY SEQUENCE FROM N.A.,
                                                                                                                                                                    SIGNAL
                                                                                                                                                                                                                                                                                                                                                Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBBUNIT: HOMODIMER; DISULFIDE-LINKED.
SUBCELLULAR LOCATION: EXTRACEBILLAR.
TISSUE SPECIFICITY: PLACENTA AND KIDNEY.
PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue.
SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biol. Chem. 269:9921-9925(1994).

FUNCTION: CATALYZES THE DECRAFICON OF COMPOUNDS SUCH AS PUTTERSCLUE, HISTAMINE, SPERMINE, AND SPERMIDINE, SUBSTANCES INVOLVED IN ALLERGIC AND IMMUNE RESPONSES, CELL PROLIFERATION, TUMOR FORMATION, AND POSSIBLY APOPTOSIS. PLACENTAL DAO IS THOUGHT TO PLAY A ROLE IN THE REGULATION OF THE FEMALE REPRODUCTIVE FUNCTION.

CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO + NH(3) +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     H(2)O(2).
COFACTOR: Binds 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        x., Kim J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             K1 M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g requires a license agreement (S
an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Acad. Sci. U.S.A.
      391
461
510
512
675
675
664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       J., McIntire W.S.;
es of variant forms of
t. 33:261-268(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PubMed-2217167;
      391
461
510
512
675
575
575
110
                                                                                                                                                  19
751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AND CHARACTERIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    copper ion and 1 to R: DISULFIDE-LINKED.
                                                                                                                                                                                                                                                                                                                                                                                             ALT_SEQ
AMILORIDE-SENSITIVE AMINE O: [COPPER-CONTAINING].
COPPER (POTENTIAL).
TOPAQUIMONE.
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
HEPARIN (BY SIMILARITY).
AMILORIDE (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87:7347-7351(1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         , Munemitsu
Tartar A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PARTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cDNA structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        placenta diamine oxidase.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IN THE REGULATION OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ullrich
                                                                                                                                                                                               Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Champigny
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   per subunit
   (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γď
                                                                                                                                                  OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and functional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                inhibited
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             סי
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γď
```

```
RESULT
AMO_KLE
ID AN
AC P4
DT 01
                                                                                                밁
                                                                                                                                                     밁
                                                                                                                                                                            Š
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                            KLEAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARIANT
                                                                                                                                                       675
                                                                                                                                                                                 684
                                                                                                                                                                                                                                      625
                                                                                                                                                                                                                                                                                                                                                  505
                                                                                                                                                                                                                                                                                                                                                                             435
                                                                                                                                                                                                                                                                                                                                                                                                      448
                                                                                                                                                                                                                                                                                                                                                                                                                                 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        142
                                                                                                732
                                                                                                                                                                                                                                                                 555
                                                                                                                                                                                                                                                                                             565
                                                                                                                                                                                                                                                                                                                       495
                                                                                                                                                                                                                                                                                                                                                                                                                                                             388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       110
                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             50
                                                                                                                          QAAACAPDLPAFSHGG
                                                                                                                                                                  HIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLP
                                                                                                                                                                                                                                                                                                                                     GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQV
::| :: | :| :| :| | | | | | | :: : :
                                                                                                                                                                                                                                                                                                                                                                            FKGGFNFYAGLKGQVLVLRTTSTVYNYDYIWDFIFYPNGVMEAKMHATGYVHATFYTPEG
                                                                                                                                                                                                                                                                                                                                                                                                       YS---
                                                                                                                                                                                                                                                                                                                                                                                                                                 GWGLGSVTHELAPGIDCPETATFLDTFHYYDADDPVHYPRALCLFEMPTGVPLRRHFNSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                           GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAVLYGGWSFAFRLRSSSGLQVLNVHFGGERIAYEVSVQEAVALYGGHTPAGMQTKYLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DGEVDVVVLEDPLPGGKGHDSTEEPPLFSSHKPRGDFPSPIHVSGPRLVQPHGPRFRLEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PISTAEY----ALLYHTLQEATKPLHQFFLNTTGFSFQDCHDRCLAFTDVAPRGVASGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LRFLDKGERHPVREARAVIFFGDQEHPNVTEFAVGPLPGPCYMRALS-PRPGYQSSWASR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRR 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PGTLPRKAGVESDLSNQELKAVHSFLWSKKELRLQPSSTTTMAKNTVFLIEMLLPKKYHV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAA 109
                                                                                                EDRDCSMP-PPFSYNG
                                                                                                                                                                                                           ITWARYPLAVTKYRESELCSSSIYHQNDPWHPPVVFEQFLHNNENIENEDLVAWVTVGFL
                                                                                                                                                                                                                                   FSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDF1-NNETIAGKDLVAWVTAGFL
                                                                                                                                                                                                                                                                                          TRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
                                                                                                                                                                                                                                                                                                                       LRHGTRLHTHLIGNIHTHLVHYRVDLDVAGTKNSFQTLQMKLENITNPWSPRHRVVQPTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGLVNVVLIPDNGTGGSWSLKSPVPP-----GPAP----PLQFYPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RRSWLIIQRYVE--GYFLHPTGLELLVDHGSTDAGHWAVEQVWYNGKFYGSPEELARKYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PVLFQEYLDIDQMIFNRELPQASGLLHH------CCFYKHRGRNLVTMTTAPRGLQSGD
                                                                                                                                                    HIPHSEDIPNTATPGNSVGFLLRPFNFFPEDPSLASRDTVIV-WPRDNGPNYVQ--RWIP
                                                                                                                                                                                                                                                                EQTQYSWERQAAFRFKRKLPKYLLFTSPQENPWGHKRSYRLQIHSMADQVLPPGWQEEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                          -HYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ξ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28
332
85363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            168
538
745
619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34.0%;
                                                                                                                          759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1394; DB 1;
Pred. No. 7.1e-101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /FTId=VAR_007542.
R -> A (IN REF. 4).
S -> F (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DAO2).
H -> D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
R -> RTEGGQPRALSQARSPVPGR (IN ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             188B6695C44232DA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                614
                                                                                                                                                                                                                                                                                          624
                                                                                                                                                                                                                                                                                                                                                                                                                                434
                                                                                                                                                                                                                                                                                                                                                                                                                                                           447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   82
                                                                                                                                                                                                            674
                                                                                                                                                                                                                                     683
                                                                                                                                                                                                                                                                                                                     554
                                                                                                                                                                                                                                                                                                                                               564
                                                                                                                                                                                                                                                                                                                                                                         494
                                                                                                                                                                                                                                                                                                                                                                                                      504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    327
```

AMO_KLEAE P49250; 01-FEB-1996

(Rel. 33, Created)

STANDARD;

PRT;

755 ₽

```
Ş
                                                                                                        밁
                                                                                                                                                ρ
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Si
Matches 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPRO00269; CUNH_OXIDASE.

Pfam; PF01179; CU_amine_OXid; 1.

Pfam; PF02727; CU_amine_OXid(3; 1.

Pfam; PF02728; CU_amine_OXid(3; 1.

Pfam; PF02728; CU_amine_OXid(3; 1.

PROSITE; PS01164; COPPER_AMINE_OXID_2; 1.

PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.

OXIDORAL 31 30 COPPER_AMINE_OXID_2; SI SIGNAL 31 755 COPPER_AMINE_OXID_2; SI SIGNAL 31 755 COPPER_AMINE_OXID_CHAIN 31 755 COPPER_AMINE_OXID_CHAIN 31 755 COPPER_AMINE_OXID_CHAIN 31 755 COPPER_AMINE_OXID_CHAIN 31 755 COPPER_CPOTENTINES 496 496 TOPPAQUINONE_CBY METAL 556 556 COPPER_CPOTENTINES 496 TOPPAQUINONE_CBY METAL 556 556 COPPER_CPOTENTINES 496 TOPPAQUINONE_CBY METAL 556 SOPPER_CPOTENTINES 496 TOPPAQUINONE_CBY TOPPAQUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             METAL .
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FBB-1996 (Rel. 33, Last sequ
15-JUN-2002 (Rel. 41, Last anno
Copper amine oxidase precursor
(Tyramine oxidase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "A monoamine-regulated Klebsiella aerogenes c monoamine oxidase structural gene (maoA) and J. Bacteriol. 174:2485-2492(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; D10208; BAA01060.1; -. HSSP; P46883; 10AC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sugino H., Sasaki M., Azakami
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-92210491;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                     246 ELLVNHKALDPARWTIQKV---FYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWS- 301
       410
                                                         383
                                                                                                           350
                                                                                                                                                             327
                                                                                                                                                                                                               290
                                                                                                                                                                                                                                                                                                             237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacteriol. 174:2485-2492(1992).
- FUNCTION: ACTIVE ON TYRAMINE, TRYPTAMINE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H(2)0(2).

COFACTOR: Binds 1 copper ion and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOPAMINE.
CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBCELLULAR LOCATION: Periplasmic. INDUCTION: BY TYRAMINE AND CATECHOLAMINES.
AYLDSGDYGMGTLTSPIVRGKDAPSNAVLLDETIADYTGKPTTIPGAVAIFE
                                                       RYVDGG-FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLR
                                                                                                        GDT I HWQNWDFHLRLNSRVGPILSTVTYNDNGTKRQVMY EGSLGGMIVPYGDPDVGWYFK
                                                                                                                                                          GSRVASSLWTFSFGLGAFSGPRIFDVRFQG----ERLVYEISLQEALAIYGGNSPAAMTT
                                                                                                                                                                                                            PIENLVAVVDLEAKKIIKIEEGPVIPVPMEPRPYDGRDRNAPAVKPLEITEPEGKNYTIT
                                                                                                                                                                                                                                                                                                           EVLKKHGITDPGKVVTTPLTVGFFDGK--DGLQQ-----DARLLKVVSYLDTGDGNYWAH
                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                      --LKS------PVPPGPAP------PLQF-YPQGPRFSVQ 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=1556068;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AND SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83576 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                      10.1%;
27.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                              75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATALYTIC BASE (BY SIMILARITY).
TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
7B5552283CD93EFF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                         Score 413; DB
Pred. No. 2.5e
75; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COPPER AMINE OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ဝှ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yamashita M., Murooka Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                      413; DB 1;
No. 2.5e-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ion update)
1.4.3.6) (Monamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 operon containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the maoC gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BETA-PHENETHYLAMINE AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Metal-binding
                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   per
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RCHO +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       oxidase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subunit
                                                                                                                                                                                                                                                                                                                                                                                                              108;
                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                          382
                                                                                                                                                                                                            349
       461
                                                                                                                                                                                                                                                                                                                                                                                                              21;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
 STRAIN=K12;
MEDLINE=97251357; P
Aiba H., Baba T., F
Itoh T., Kasai H.,
                                                                                  Mau B., Shao Y.; "The complete genome sequence Science 277:1453-1474(1997).
                                                                                                                            STRAIN-K12 / MG1655;

MEDLINE-97426617; PubMed-9278503;

Blattner F.R., Plunkett G. III, Bloch C./

Riley M., Collado-Vides J., Glasner J.D.,

Gregor J., Davis N.W., Kirkpatrick H.A.,
                                                                                                                                                                                                                             Parsons M.R., Convery M.A., Wilmot C.M., Yadav K.D.S., Corner A.S., Phillips S.E.V., McPherson M.J., Knowles F. "Crystal structure of a quinoenzyme: copper amine oxida Escherichia coli at 2-A resolution.";
Structure 3:1171-1184(1995).
                                                                                                                                                                                                                                                                                                STRAIN-K12 / K10;
MEDLINE-96164434; PubMed-8591028;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        p46883; p78153; O53008;
01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Copper amine oxidase precursor (EC 1.4
(2-phenylenthylamine oxidase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AMO_
                                                                                                                                                                                                                                                                                                                                                                     "Nucleotide sequence of the Escherichia coli.";
                                                                                                                                                                                                                                                                                                                                                                                                   Murooka
                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN-K12 / W3110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Proteobacteria; 
Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Escherichia coli
                                                            SEQUENCE
                                                                                                                                                                                                    SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A., AND X-RAY CRYSTALLOGRAPHY (2.0
                                                                                                                                                                                                                                                                                                                                                        J. Ferment. Bioeng. 77:315-319(1994).
                                                                                                                                                                                                                                                                                                                                                                                                              Azakami H., Yamashita M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYNA OR MAOA OR B1386.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _ECOLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RYAGPEYKHLEMGKPNVSTERRELVVRWISTVGNYDYIFDWVFHDNGTIGIDAGATGIEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QIIPYAGGTHPAATGAKFAPDEWIYHRLSFMDKQLWVTRYHPTERYPEGKYPNRSAHDTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QMLSFAG--EPLPQNSSMA-----RGFSWERYQLAVTQRKEEE-----PSSSSVFNQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS--NKWGHPRGYRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SAFLEGAT------GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFV
: | ; | ; | | ; | | | ; | : | | | | ; | |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RHHSDLYSHYFGG-----LAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FDETPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LGQYAK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PNT---AGGPRTSTMQVNQYTIDSEQKAAQKFDPGTIR---LLSNTSKENRMGNPVSY--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VKGVLAKTMHDPSAKEDTRYGTLIDHNIVGTTHQHIYNFRLDLDVDGENNTLVAMDPEVK
                                                          FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
; PubMed=9097039;
, Fujita K., Hayas
., Kashimoto K., K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -DDESLTNHDDVVWITTGTTHVARAEEWPIMPT--EWALALLKPWNF
                                                                                                                                                                                                                                                                                                                                                                                                              Roh J.-H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence update)
                                                                                                                                                                                                                                                                                                                                                                                  gene for monoamine
  Hayashi K.,
K., Kimura
                                                                                                   of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  subdivision;
                                                                                                     Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ion update)
1.4.3.6) (Tyramine oxidase)
                                                                                                                                                                                                                                                                                                                                                                                                              Suzuki H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            757
                                                                                                                              C.A., Perna N.T., Burl
.D., Rode C.K., Mayhew
A., Goeden M.A., Rose I
    ;
    Inada T., I
S., Kitakawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                     coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                    oxidase (maoA)
                                                                                                                                                                                                                                                                                                                                                                                                              Kumagai
                                                                                                     K-12.";
                                                                                                                                                                                                                                                          oxidase
    Isono
                                                                                                                                                                                                                                                                                                                              ANGSTROMS)
                                                                                                                                 Rose D.J.,
                                                                                                                                                                                                                                                                                     Blakeley
                                                                                                                                                                                                                                                                                     ۷.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      633
```

```
WEDLINE-20045000; PubMed-1007, Knowles r.c., Wilmot C.M., Hajdu J., McPherson M.J., Knowles r.c., Wilmot C.M., Wilmot C.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wilmot C.M., Murray J.M., Alton G., Pars Blakeley V., Corner A.S., Palcic M.M., K Phillips S.E.V.;
"Catalytic mechanism of the quinoenzyme Escherichia coli: exploring the reductiv Blochemistry 36:1608-1620(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
STRAIN-W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ......., a gene that encodes a positive regulator of the monoamine oxidase gene (maoA) in Escherichia coli.";
J. Bacteriol. 178:2941-2947(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kitagawa M., Makino K., Miki T., Mizobuchi K., Mori H., Mori T. Motomura K., Nakade S., Nakamura Y., Nashimoto H., Nishio Y., Oshima T., Saito N., Sampei G., Seki Y., Sivasundaram S., Tagami H., Takeda J., Takemoto K., Takeuchi Y., Wada C., Yamamoto Y., Horiuchi T., "A 570-kb DNA sequence of the Escherichia coli K-12 genome corresponding to the 28.0-40.1 min region on the linkage map.";
                                                                                                                                                                                                                                                                                                                                                                                                              X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).

MEDLINE=99315198; PubMed=10387067;

Murray J.W., Saysell C.G., Wilmot C.M., Tambyrajah W.S., Jaeger Knowles P.F., Phillips S.E.V., McPherson M.J.;

"The active site base controls cofactor reactivity in Escherichi".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS). MEDLINE-97200715; PubMed-9048544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organization and expression.";
Microbiology 143:513-518(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-97195795; PubMed-9043126;
Hanlon S.P., Hill T.K., Flavell M.
"2-phenylethylamine Catabolism by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=96213037; PubMed=8631685; Yamashita M., Azakami H., Yokoro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 31-50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ferrandez A., Prieto M.A., Garcia J.L., "Molecular characterization of PadA, a | dehydrogenase from Escherichia coli.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 477-757 FROM N.A. STRAIN-W / ATCC 11105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Garcia J.L., Diaz E.;
"Catabolism of phenylacetic acid in Escherichia coli. Characterization
of a new aerobic hybrid pathway.";
J. Biol. Chem. 273:25974-25986(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-98421522; PubMed-9748275; Ferrandez A., Minambres B., Garcia B.,
                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (2.4 ANGSTROMS).
MEDLINE=20045000; PubMed=10576737;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN-KI
                                                                                                                                                                                                                                                                                                                                                Biochemistry 38:8217-8227(1999).
                                                                                                                                                                                                                                                                                                                                                                                               coli amine oxidase: x-ray
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kumagai H., Murooka Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-W / ATCC 11105;
MEDLINE-97263463; Pubm
SUBUNIT:
                                                                     CATALYTIC ACTIVITY: 2-phenylethylamine + H(2)0 phenylacetaldehyde + NH(3) + H(2)0(2). CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)0 + O(2) H(2)0(2). COFACTOR: Binds 1 copper ion, 2 calcium ions an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lett. 406:23-27(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OF 1-59 FROM N.A. / ATCC 11105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3:363-377(1996).
  HOMODIMER
                       INITIAL STEPS
                                                                   Binds 1 copper ion,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PubMed-9109378;
                                                                                                                                                                                                                                                                                                                                                                                               crystallographic studies
                       ę,
                    2-PHENYLETHYLAMINE CATABOLISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          G., Parsons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    reductive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .A., Stringfellow J.M., Escherichia coli K-12:
                                                                2 calcium ions and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Roh J.-H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Knowles P.I
                                                                                                                                                                                                                                           Knowles P.F., Phillips
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 phenylacetaldehyde
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Olivera
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Diaz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amine oxidase from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 half-reaction.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           [F]
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Suzuki H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Convery M.A.,
                                                                                                                       .
                                                                                                                                                                   + 0(2)
                                                                                                                                                                                                                                                                                                                                                                                               with mutational
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Luengo
                                                                                                                    RCHO + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          McPherson
                                                                                                                                                                                                                                                                                                                                                                                                                    Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mori T.,
                                                                                                                                                                                                                 llips S.E.;
catalysis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cooper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  J.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          M.J.,
                                                                                                                                                                                                                                         .
H3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R.A.;
```

```
밁
                    δÃ
                                                                                        Query Match
Best Local S
Matches 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PDB; 1OAC; 03-APR-96.
PDB; 1SPU; 12-MAR-97.
PDB; 1OAK; 23-AUG-99.
PDB; 1OAK; 24-AUG-99.
PDB; 1DAL; 24-AUG-99.
PDB; 1DAU; 29-FEB-00.
PDB; 1D6Y; 02-FEB-00.
PDB; 1D6Z; 02-FEB-00.
PDB; 1D6Z; 02-FEB-00.
                                                                                                                                                                                                                                                  CA_BIND
ACT_SITE
                                                                                                   CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                           VARIANT
VARIANT
                                                                                                                                                                                                                                        MOD_R
                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
Oxidoreductase; Metal-binding; Copper; Calcium-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF01179; Cu_amine_oxid; 1. Pfam; PF02727; Cu_amine_oxidN2; Pfam; PF02728; Cu_amine_oxidN3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; D90776; BAA14993.1;
EMBL; X97452; CAA66104.1;
EMBL; X97453; CAA66107.1;
PDB; 10AC; 03-APR-96.
                                                                                                                                                                                                                 METAL
                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                   Periplasmic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.lsb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <del>-</del> -
                                                                                        SEQUENCE
                                                                                                                                                                                                                              METAL
                                                                                                                                                                                                                                                                                                                                                                                         SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EcoGene;
                       265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s SWISS-PROT entry is copyright. It is produced through a collaboration -ween the Swiss Institute of Bioinformatics and the EMBL outstation -
European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBCELLULAR LOCATION: Periplasmic.
PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue.
SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
YFDGK--DGLKQ-----DARLLKVISYLDVGDGNYWAHPIENLVAVVDLEQKKIVKIEEG
                     FYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWS
                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EG13140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EGI3140; tynA.
IPR000269; CuNH_oxidase.
                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                    Signal;
                                                                                        8
                                                                                        84378
                                                      9.7%;
                                                                                        MW.
                                                                                                                                 COPPER.

K -> E (IN STRAIN W).
L -> I (IN STRAIN W).
G -> E (IN REF. 7).
K -> E (IN REF. 1).
GY -> VI (IN REF. 1).
I -> II (IN REF. 1).
MISSING (IN REF. 1).
                                          Score 397.5;
Pred. No. 4e-2
74; Mismatches
                                                                                                                         MISSING P -> I (
                                                                                                                                                                                                                                                            2 (VIA CARBONYL OXYGEN). CATALYTIC BASE (PROBABLE).
                                                                                                                                                                                                                            COPPER
                                                                                                                                                                                                                                        COPPER
                                                                                                                                                                                                                                                  TOPAQUINONE.
                                                                                                                                                                                                                                                                                                                                                                             COPPER AMINE OXIDASE.
                                                                                      -> I (IN REF. 1).
A -> P (IN REF. 1).
H -> D (IN REF. 1).
65600BCED35243DB C
                                                                                                                                                                                                                                                                                                                                                       (VIA CARBONYL OXYGEN)
                                                                                                                                                     (IN STRAIN W).
(IN STRAIN W).
! (IN REF. 7).
£ (IN REF. 1).
                                                                                                                                                                                                                                                                                                                                                                                                 Complete
                                                                                                                                                                                                                                                                                                                      CARBONYL OXYGEN)
                                                       4e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        There are no
                                                                 DB
                                                                                                                                                                                                                                                                                                                                                                                                   proteome
                                                                 ۲,
                                                                                        CRC64;
                                           Indels
                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                             TPQ:
                                                                  757;
                                           , 68
                     ---LKS
                                          Gaps
                     304
                                           20;
```

```
RESULT REAL PROPERTY OF THE PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Choi
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                              "Copper/topa quinone-containing histamine oxidase from Arthrobacter globiformis. Molecular cloning and sequencing, overproduction of precursor enzyme, and generation of topa quinone cofactor.";
J. Blol. Chem. 270:4712-4720(195).
-I- FUNCTION: OXIDIZE HISTAMINE. OTHER AMINES INCLUDING PHENETHYLAMINE, TYRAMINE, TRYPTAMINE, PUTRESCINE, AND BENZYLAMINALSO SERVE AS SUBSTRATE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _ARTGO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A., AND PARTIAL SEQUENCE STRAIN-IFO 12137 / ATCC 8010; MEDLINE-95181469; Pubmed-7876243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arthrobacter globiformis.
Bacteria; Actinobacteria (class);
Actinomycetales; Micrococcineae; Micrococcaceae; A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Histamine oxidase (EC 1.4.3.6) (Copper amine
                                                                                                                                                                                                                                                                                                                                                                                                     -!- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ozaki Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AMOH_ARTGO
Q59118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            305
                                                                                                                                                                                  PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue. SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                           COFACTOR: Binds 1 copper ion and 1 topaquinone
                                                                                                                                                                                                                                                                                     SUBCELLULAR LOCATION: CY
INDUCTION: BY HISTAMINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . Ү.-Н.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTTHVARAEEWPIMPT--EWVHTLLKPWNFFDETPT 749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GNEQDAAQKFDPGTIR-LLSNPNKENRMGNPVSY--QIIPYAGGTHPVAKGAQFAPDEWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGG-----LAET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GFLHIPHAEDIPHTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAG--EPLPQNSSMA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LIDHNIVGTTHQHIYNFRLDLDVDGENNSLVAMDPVVKPNT---AGGPRTSTMQVNQYNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ELVVRWISTVGNYDY1FDW1FHENGT1G1DAGATG1EAVKGVKAKTMHDETAKDDTRYGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGY----ISSAFLFGATGK----YGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YHRLSFMDKQLWVTRYHPGERFPEGKYPNRSTHDTGLGQYSK--DNESLDNTDAVVWMTT 715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -RGFSWERYQLAVTQRKEEEPSSSSVF-NQNDPWAPTVDFSDFINNETIAGKDLVAWVTA 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APSNAVLLNETIADYTGVPMEIPRAIAVFE-----RYAGPEYKHQEMGQPNVSTERR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IFDVRFQG----ERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVD 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PVVPVPMTARPFDGRDRVAPAVKPMQIIEPEGKNYTITGDMIHWRNWDFHLSMNSRVGPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PVPPGP-----AP---PLQFY-PQGPRFSVQGSRVASSLWTFSFGLGAFSGPR 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ISTYTYNDNGTKRKVMYEGSLGGMIVPYGDPDIGWYFKAYLDSGDYGMGTLTSPIARGKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tanizawa K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matsuzaki R., Fukui T., Shimizu E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                               Cytoplasmic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   oxidase).
                                                                                                                                                                                                                                                                                                                                                                                                        0(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yorifuji T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                           .
                                                                                                                                                                                                                                                                                                                                           per subunit
                                                                                                                                                                                                                                                                                                                                                                                                     RCHO + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AND BENZYLAMINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sato
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              622
```

```
Ş
                               망
                                                          Qy
                                                                                          В
                                                                                                                     δÃ
                                                                                                                                                   В
                                                                                                                                                                               Ş
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                  DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
Matches 182; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS01164; COPPER_AMINE_OXID_1; PROSITE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; D38508; BAA07517.1; - HSSP; P46881; 1AV4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oxidoreductase;
INIT_MET (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                418
                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                     369
                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     103
                                                                                                                                                                                                                                                                                                                                                                                                                                                              189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        σ
YFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGG
                            AQDRDIDGQDLVVWHSFGLTHFPRPEDWP--IMPVDTTGFTLKPHGFFDENPTLNVPSSA
                                                                                                                                                                                                          EAKATGIVFTAALPDKDYAYASEIAPGLGAPYHQHLFSARLDMMIDGDANRVEELDLVRL
                                                                                                                                                                                                                                                                      GICIHEEDAGILWK--HTDEWAGSDEVRRNRRLVVSFFTTVGNYDYGFYWYLYLDGTIEF
                                                                                                                                                                                                                                                                                                                                                                LAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PHCPSVSPSAQPWT--HPGQSQLFADLSREELTAVMRFLTQRLCPGLVDAAQARPSDNCV 96
                                                        INNETIAGKDLVAWYTAGFLHIPHAEDIPNTYTYGNGYGFFLRPYNFFDEDPSFYSADSI
                                                                                       P----EGNPTLAMADDSSIASRAAFARHHLWVTRHAEEELYAAGDFVNQHPGGAVLP-AYV
                                                                                                                   MLSFAGEP----LPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDF
                                                                                                                                                 PKG-PGNPHG--NAFTQKRTLLARESEAVRDADGAKGRVWHISNPDSLNHLGHPVGYTLY
                                                                                                                                                                              PMAVPWSPEHOLORLOVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIQ
                                                                                                                                                                                                                                          RFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFV
                                                                                                                                                                                                                                                                                                    AFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEI
                                                                                                                                                                                                                                                                                                                                    VVPYGDPSPYRSWQNYFDSGEYLVGRDANSLRLGCDCLGDITYMSPVVADDFGNPRTIEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LDPARWTIOKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPD-NGTGGSWSLKSPVPPGPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YKHRGRNLVTMTTAP-----RGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKA 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCF 200
                                                                                                                                                                                                                                                                                                                                                                                               IEIMQPEGPSFTLEGNHLSWAGWDLRVGFDAREGLVLHQLHHSHKGRRRPVIHRASISEM
                                                                                                                                                                                                                                                                                                                                                                                                                           PLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVR--FQGER--LVYEISLQEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AHPIDGLVAFVDVENRRVNHL-----IDDGPVPV---PEVNGNYTDPAIRGELRTDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSTPLVQDPPVPATLVHAAAQHPLEQLSAEEIHEARRILAE---AGLVG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ------ESTRFAYLGLIEPPKTTRQGDVTGAARLVRAMLWDAAQSRSLDVRLSLATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FSVELQLPPKAAALAHLDRGSPP------PAREALAIVFFGRQPQ-----PNVSE 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -TARGLTPAQVRVAPLSAGVFEYGNEEGKRL-----LRGLGFRQDHP-----ADHPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR000269; CuNH_oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9.2%; Score 377; DB 1; 1 larity 24.1%; Pred. No. 1.4e-21; Conservative 107; Mismatches 343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          450
452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----RRELNPEADG-----QLPVLLEEFGIIEDIL--SEDPQWNAAL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Α
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Copper; TPQ; Metal-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            401
450
452
611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74979 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COPPER (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPAQUINONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          233C46C017201AA0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FALSE_NEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                              648
                                                                                                                                                                               606
                                                                                                                                                                                                                                          547
                                                                                                                                                                                                                                                                                                      487
                                                                                                                                                                                                                                                                                                                                                                  427
                                                          723
                                                                                        590
                                                                                                                     663
                                                                                                                                                   534
                                                                                                                                                                                                                                                                        417
                                                                                                                                                                                                                                                                                                                                    359
                                                                                                                                                                                                                                                                                                                                                                                                299
                                                                                                                                                                                                                                                                                                                                                                                                                                                           239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     188
                                                                                                                                                                                                             477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28;
```

용

649

AGHCGTG----

-SEREHAAPGGTAVGHSG 672

```
RESULT AND LAW SET THE BEST OF THE BEST OF
        밁
                                                     ş
                                                                                                        В
                                                                                                                                                      Š
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 177; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q07121;
01-FEB-1996
01-FEB-1996
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                METAL
METAL
METAL
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zhang X., Fuller J.H., McIntire W.S.;

"Cloning, sequencing, expression, and regulation of the structural gene for the copper/topa quinone-containing methylamine oxidase from Arthrobacter strain Pl, a Gram-positive facultative methylotroph.",

J. Bacteriol. 175:5617-5627(1993).

-I- FUNCTION: THE EXACT FUNCTION OF MAOXI IS NOT KNOWN.

-I- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO + NH(3) +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _ARTS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the European Bioinformatics Institute. There are no resuse by non-profit institutions as long as its content modified and this statement is not removed. Usage by an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity).
-!- SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE; PS01164; CÓPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidn2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; L12983; AAA22076.1; -. HSSP; P46881; 1AV4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-93374858;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Actinomycetales;
NCBI_TaxID-47915;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Micrococcineae; Micrococcaceae; Arthrobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arthrobacter sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Copper amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMO1_ARTS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oxidoreductase;
        109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γfam;
                                                                                                                                                            115
                                                                                                        58
                                                                                                                                                                                                               12
                                                                                                                                                                                                                                                       55 GQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H(2)O(2).
  EFAECEDAC - - RKDPE - -
                                                                                                                                                                                                       GVSHPLDPLSRVEIARAVAILKE--GPAAAESFR-----FISVELREPSKDDL-----
                                                EYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRA---TWFGLYY 231
                                                                                                      RAGVAVAREADAVLV -- DRAQARSFEAVVD -----
                                                                                                                                                 RGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQ 174
                                                                                                                                                                                                                                                                                                                                                                                                                      648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10
385
436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Rel. 33, Created)
(Rel. 33, Last sequence up)
(Rel. 41, Last annotation
                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cu_amine_oxidN2; 1.
Cu_amine_oxidN3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                      AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Copper;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (strain P1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=8366046;
                                                                                                                                                                                                                                                                                                                                                                                                                                              595
595
                                                                                                                                                                                                                                                                                                                                        8.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                      72760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        , Last sequence update)
, Last annotation update)
precursor (EC 1.4.3.6) (MAOXI).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TPO;
                                                                                                                                                                                                                                                                                                                                                                                                                      ¥.
                                                                                                                                                                                                                                                                                                               96;
                                                                                                                                                                                                                                                                                                                                                                                                                                      COPPER AMINE OXIDASE.
TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                        Score 363;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Metal-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                   B2F9E267492253B5
                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10-54; 358-381 AND 456-466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (See http://www.isb-sib.ch/announce/
VIAALAKRGLTNLDLVCFEPWSVGYF
                                                                                                                                                                                                                                                                                                                                        .6e-20;
                                                                                                                                                                                                                                                                                                                                                                DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ጅ
                                                                                                -LEAGTVDSWKLLAENIQPPFMLD
                                                                                                                                                                                                                                                                                                                                                             Length 648;
                                                                                                                                                                                                                                                                                                                                                                                                                CRC64;
                                                                                                                                                                                                                                                                                                             Indels 164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             in no way
                                                                                                                                                                                                         57
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMO2_ARTS1
Q07123;
                                                                                                                                                             Zhang X., Fuller J.H., McIntire W.S.; rCloning, sequencing, expression, and regulation of the structural gene for the copper/topa quinone-containing methylamine oxidase fro Arthrobacter strain Pl, a Gram-positive facultative methylotroph."; J. Bacteriol. 175:5617-5627(1993).

-i- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO + NH(3) +
                                                                                                                                                                                                                                                                                                                                  Arthrobacter sp. (strain P1).
Bacteria; Actinobacteria; Actinobacteria (class); Actinobacteridae; Actinomycetales; Micrococcineae; Micrococcaceae; Arthrobacter.
              This
                                                                                                                                                                                                                                                                   MEDLINE-93374858;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-FEB-1996
                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A., AND SEQUENCE OF 10-54; MEDLINE-93374858; PubMed-8366046;
                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=47915;
                                                                                                                                                                                                                                                                                                                                                                                                                        15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          626 LNLPTSTSTTQTGEADTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      232
                                           INDUCTION: BY METHYLAMINE.

PTM: Topaquinone (TPO) is generated by copper-dependent PTM: Topaquinone (TPO) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity).

SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                   H(2)O(2).
COFACTOR: Binds 1 copper ion
                                                                                                                 SUBUNIT: HOMODIMER
SWISS-PROT entry is copyright. It is prod 
een the Swiss Institute of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FYSADSIYFRGDQDAGAC 734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DGLHIWTQKDRNIVDTDLVVWYTFGMHHVVRLEDWP--VMPRQNIGFMLEPHGFFNQNPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GEKNPYGQSLNNDGLYAPIHQHMFNVRMDFELDGVKNAVYEVDMEY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATGKYGNQVSEHTL-GTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KHFDFREGTAETRRSRKLVISFIATVANYEYAFYWHLFLDGSIEFLVKATGILSTAGQLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SH--YFGGLAET----VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSA-FLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YNIGNMANSLTLGCDCLGEIKYFDGHSVDSHGNPWTIENAICMHEEDDSI------LW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DWSFRVGFTPREGLVLHQLKFKDQGVDRPVINRASLSEMVVPYGDTAPVQAKKNAFDSGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LWTFSFGLGAFSGPRIFDVRFQGE----RLVYEISLQEALAIYGGNSPA-AMTTRYVDGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VRLEDDQA-----IPVPSARGNYLPKYVGEARTDLKPLNITQPEGASFTVTGNHVTWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VLIPDNGTGGSWSLKSPVPPGPAPPLQFY-------PQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GEDNEGRRL - - MRALVFVRDEADDSPYAHPIENFIVFY - - - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NISGAGFFLHHVGLELLVNHKALD-PARWTIQK--VFYQGRYYDSLAQLEAQFEAGLVNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD-----FSDFINNET---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTAFMAVDRLLETEQKAIRKTNEAKHRFWKIANHESKNLVNEPVAYRL------IPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NG ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIQMLSFAGEPLPQ
                                                                                                                                                                                                                                                                                                                                                                                                      methylamine
                                                                                                                                                                                                                                                                                                                                                                                                     (Rel. 33, Created)
(Rel. 33, Last sequence update)
(Rel. 41, Last annotation updat)
ylamine oxidase precursor (EC 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----IAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IQLAA - - RDDAYVSKRAQFARNNLWVTAYDRTERFAAGEYPNQATGAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                 and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                     n update)
(EC 1.4.3.6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ጅ
              produced through
                                                                                                                                                                                                                                                                                     358-381 AND 456-466
and
                                                                                                                                                                                                                                                                                                                                                                                                      (MAOXII).
                                                                                                                               per subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----DLNAG--KV
jh a collaboration
EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -PEHNPT
                                                                                                                                                                                                                  from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           668
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                     Ş
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                              . B
                                                                                                                                õ
                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 177; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      METAL
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE; PS01164; COPPER_AMINE_OXID_1; 1. PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; L12990; AAA22074.1; -. HSSP; P46881; 1AV4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; I
                                                                                                                                                                                                                                                       449
                                                                                                                                                                                                                                                                                  305
                                                                                                                                                                                                                                                                                                               389
                                                                                                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                                                                                                                                        334
                                                                                                                                                                                                                                                                                                                                                                                                   192
                                                                                                                                                                                                                                                                                                                                                                                                                                289
                                                                                                                                                                                                                                                                                                                                                                                                                                                            149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           115
                                                                                                       469
                                                                                                                                                              417
                                                                                                                                                                                           502
                                                                                                                                                                                                                        357
                                                                                                                                   560
                669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                     FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLY 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLYTMTTAPRGLQSGDRA---TWFGLYY 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GVSHPLDPLSRVEIARAVAILKE--GPAAAESFR-----FISVELREPSKDDL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GOSOLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLD 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PF01179; Cu_amine_oxid; 1.
PF02727; Cu_amine_oxidN2; 1.
PF02728; Cu_amine_oxidN3; 1.
                                                                                                                                                                                                                                                                                  YNIGNMANSLTLGCDCLGEIKYFDGHSVDSHGNPWTIENAICMHEEDDSI-----
                                                                                                                                                                                                                                                                                                                                        DWSFRVGFTPREGLVLHQLKFKDQGVDRPVINRASLSEMVVPYGDTAPVQAKKNAFDSGE 304
                                                                                                                                                                                                                                                                                                                                                                                                  VRLEDDQA-----IPVPSARGNYLPKYVGEARTDLKPLNITQPEGASFTVTGNHVTWA
                                                                                                                                                                                                                                                                                                                                                                                                                               VLIPDNGTGGSWSLKSPVPPGPAPPLQFY------PQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GEDNEGRRL--MRALVFVRDEADDSPYAHPIENFIVFY------DLNAG--KV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NISGAGFFLHHVGLELLVNHKALD-PARWTIQK--VFYQGRYYDSLAQLEAQFEAGLVNV 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RGSPPPAREALAIVFFGROPOPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQ 174
                                                                                                                                                              GEKNPYGQSLNNDGLYAPIHQHMFNVRMDFELDGVKNAVYEVDMEY------PEHNPT
                                                                                                                                                                                           GATGKYGNQVSEHTL-GTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL- 559
                                                                                                                                                                                                                       KHFDFREGTAETRRSRKLVISFIATVANYEYAFYWHLFLDGSIEFLVKATGILSTAGQLP 416
                                                                                                                                                                                                                                                    SH--YFGGLAET----VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSA-FLF 501
                                                                                                                                                                                                                                                                                                                                                                     LWTFSFGLGAFSGPRIFDVRFQGE----RLVYEISLQEALAIYGGNSPA-AMTTRYVDGG 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EFAECEDAC - - RKDPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAGVAVAREADAVLV--DRAQARSFEAVVD-----LEAGTVDSWKLLAENIQPFMLD 108
                                                                         NSSMARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD
                                                                                                      GTAFMAVDRLLETEQKAIRKTNEAKHRFWKIANHESKNLVNEPVAYRL------IPT
                                                                                                                                 -ORLOVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIOMLSFAGEPLPO 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10
385
436
438
595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PR000269; CuNH_oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                            ----IQLAA---RDDAYVSKRAQFARNNLWVTAYDRTERFAAGEYPNQATGAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        À
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Copper;
-IAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     648
385
436
438
595
72805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TPQ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COPPER METHYLAMINE OXIDASE.
TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
MW; B2FB2787492253B5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 363; DB 1;
Pred. No. 1.6e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Metal-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -VIAALAKRGLTNLDLVCFEPWSVGYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 648;
                                                                         ----FSDFINNET---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              164;
                                                                                                                                                                                                                                                                                 Ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    148
                                                                         899
                                                                                                                                                              468
                                                                                                                                                                                                                                                                                 356
                                                                                                                                                                                                                                                                                                                                                                                                  244
                                                                                                                                                                                                                                                                                                                                                                                                                                                            19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57
                                                                                                      519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31;
```

MOD_RES
METAL
METAL
METAL
DISULFID
MUTAGEN

382 431 433 592 317 382

592 383 343 343

PHENYLETHYLAMINE (
TOPAQUINONE.
COPPER.
COPPER.
COPPER.

Y->F: LOSS OF

ACTIVITY

PROPEP CHAIN

PS01164; COPPER_AMINE_OXID_1;
PS01165; COPPER_AMINE_OXID_2;
uctase; Copper; TPQ; 3D-struct

3D-structure;

Metal-binding.

OXIDASE

```
PRESULT 14
PROX_AR
PAGENTICA
ID PAGENTICA
PAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; U03517; AAA18114.1; -.

PDB; 1AVK; 18-MAR-98.

PDB; 1AVL; 18-MAR-98.

PDB; 1AVL; 18-MAR-98.

PDB; 1AVL; 18-MAR-98.

InterPro; IPR000269; CuNH_oxidase.

Pfam; PF01179; Cu_amine_oxid; 1.

Pfam; PF02728; Cu_amine_oxid%; 1.

Pfam; PF02728; Cu_amine_oxid%; 1.

Pfam; PF02728; Cu_amine_oxid%; 1.

PROSITE; PS01164; COPPER_AMINE_OXID_
PROSITE; PS01165; COPPER_AMINE_OXID_
OXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TOXID_TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P46881;
01-NOV-1995
01-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 9-628.

MEDLINE-98070236; pubMed-9405045;

Wilce M.C., Dooley D.M., Freeman H.C., Guss J.M., Matsunami H.,

MCINTLIE W.S., Ruggiero C.E., Tanizawa K., Yamaguchi H.;

"Crystal structures of the copper-containing amine oxidase from

arthrobacter globiformis in the holo and apo forms: implications
the biogenesis of topaquinone.";

Biochemistry 36:16116-16133(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tanizawa K., Matsuzaki R., Shimizu E., Yorifuji f., "Cloring and sequencing of phenylethylamine oxidase globiformis and implication of Tyr-382 as the precure globiformis and the precure globiformis 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A., AND PARTIAL SEQUENCE STRAIN-IFO 12137 / ATCC 8010; MEDLINE-94197690; PubMed-8147851;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Phenylethylamine oxidase precursor (EC 1.4.3.6) (Amine oxidase). Arthrobacter globiformis. Bacteria; Actinobacteria; Actinobacteria (class); Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Actinomycetales; Micrococcineae; Micrococcaceae; NCBI_TaxID=1665;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PAOX_ARTGO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -!- COFACTOR: Binds 1 copper ion and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INDUCTION: BY PHENETHYLAMINE.

FTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue.

SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBUNIT: HOMODIMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               H(2)0(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LNLPTSTSTTQTGEADTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DGLHIWTQKDRNIVDTDLVVWYTFGMHHVVRLEDWP--VMPRQNIGFMLEPHGFFNQNPT 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FYSADSIYFRGDQDAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biophys. Res. Commun. 199:1096-1102(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ζ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arthrobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      per
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     implications
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fukui T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RCHO + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              n Arthrobacter
to its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for
```

```
RRA RRA
                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ይ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 157; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                            O_PEA
                                                                            01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Amine oxidase [copper-containing] precursor (EC 1.4.3.6).
Pisum sativum (Garden pea).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Trac)
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicoteurosids I; Fabales; Fabaceae; Papilionoideae; Vicieae; P:
                                                                                                                                                                                AMO_PEA
Q43077;
Q1-NOV-1
Q1-NOV-1
Tipping A.J., McPherson Submitted (MAR-1995) to [2]
                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                         506
                                                                                                                                                                                                                                                                                                                                                                                                                                                     597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        309
                                                                                                                                                                                                                                                                                                       619 RSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            106 KAAALAHLD--RGSPPPAREALAIVFF----GRQPQPNVSELVVGPLPHPSYMRDVTVER 159
                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38
                                                                                                                                                                                                                                                                                                                                  EDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SLQEALAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDC----PYLATYVDWHFLLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TNGTVISAVELDTAATGELPVLEEEFEVVEQLLATDERWLKALAARNLDVSKVRVAPLSA 139
                                                                                                                                                                                                                                                                                                                                                              GGAGLPSY--
                                                                                                                                                                                                                                                                                                                                                                                       PWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFD
                                                                                                                                                                                                                                                                                                                                                                                                                    LNEPVGYKLHAHNQPTLLADP----GSSIARRAAFATKDLWVTRYADDERYPTGDFVNQHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                 WGHPRGYRI----QMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVF-NQND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RVEEEDVVRQTMGPGNERGNAFSR---KRTVLTRESEAVREADARTGRTWIISNPESKNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LYLDGTIEFEAKATGVVFTSAFPEGGSDNI-SQLAPGLGAPFHQHIFSARLDMAIDGFTN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOKPISITOPEGPSFTVTGGNHIEWEKWSLDVGFDVREGVVLHNIAFRDGDRLRPIINRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPP 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLLHHCCFYKHRGRNLVTMTTAPRGL----QSGDRATWFGLYYNISGAGFFLHHVGLELL 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RIAYLGVLDPARGAGSEAEDRRFRVFIHDVSGARPQ------EVTVSV 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FHPSGAIEIRFYATGYI-SSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GNPREIRNGICMHEEDWGILAK--HSDLWSGINYTRRNRRMVISFFTTIGNYDYGFYWY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIAEMVVPYGDPSPIRSWQNYFDTGEYLVGQYANSLELGCDCLGDITYLSPVISDAF---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GPAPPLQFYPQGPRFSVQ-GSRVASSLWTFSFGLGAFSGPRIFDVRFQ-GERL---VYEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---RVIDTGVFPVPA--EHGNYTDP---------------ELTGPLRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GVFEYA---EERGRRIL-----RGLAFVQDFPEDSAW---AHPVDGLVAYVDVVSKEVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HGGPL------PYHRRPVLFQEYLDIDQMIFN-------RELPQAS 192
                                                                                                                                                                                                                                                                                                                                715
                                                                                                                                                                                                                                                                                                     621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative 100; Mismatches 274; Indels 132;
                                                                                                                                                                                                                                                                                                                                                            · IAQDRDIDGQDIVVWHTFGLTHFPRVEDWP--IMPVDTVGFKLRPEGFFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ξ,
                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8.3%;
23.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     70646 MW; 1800396BA7A983F2 CRC64;
            M.J.
            EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 340;
Pred. No. 9
                                                                                  eptophyta; Embryophyta; Tracheophyta;
eudicotyledons; core eudicots; Rosic
; Papillonoideae; Vicieae; Pisum.
                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                          674
                                                                                                                                                                                                                          ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .7e-19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
            databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 638;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         187
                                                                                                                                                                                                                                                                                                                                                            618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      275
```

```
B
                                                                           Š
                                                                                                        밁
  В
                          Ş
                                                                                                                                Q
                                                                                                                                                           밁
                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 120
                                                                                                                                                                                                                                                                 CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                         DISULFID CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_1;
PROSITE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                 METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                            METAL
METAL
                                                                                                                                                                                                                                                                                                                                   DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oxidoreductase; Metal-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; L39931; AAA62490.1;
PDB; 1KSI; 24-DEC-97.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -!- COFACTOR: Binds 1 copper ion, 1 manganese ion and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Structure 4:943-955(1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Crystal structure of a eukaryotic (pea seedling) amine oxidase at 2.2-A resolution.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        McGuirl M.A., Wilce M.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=96398683; PubMed=8805580;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-Seedling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR000269; CuNH_oxidase
  404
                           463
                                                     352
                                                                                                        292
                                                                                                                                  353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     per subunit.
SUBUNIT: HOMODIMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          H(2)0(2)
                                                                                                                                                                                    SLKSPVPPGPAPP---LQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSG-----PRIFDV-
RTIVTVGNYDNVIDWEFKASGSIKPSIALSGILE---IKGTNIKHKDEIKEDLHGKLVSA
                        RSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGK-----YGNQVSE
                                                                    DWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGL-----
                                                                                                     KHKSRRVLYKGYISELFVPYQDPTEEFYFKTFFDSGEFGFGLSTVSLIPNRDCPPHAQFI
                                                                                                                                RFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVDCPYLATYV 411
                                                                                                                                                          SKQSP-PFGPKQHSLTSHQPQGPGFQINGHSVSWANWKFHIGFDVRAGIVISLASIYDLE 291
                                                  DTYVHSANGTPILLKNAICVFEQ-----YGNIMWRHTENGIPNESIEESRTEVNLIV
                                                                                                                                                                                                             Similarity 25.8
20; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3D-structure
                                                                                                                                                                                                                                                                  Ą
                                                                                                                                                                                                                                                                                            25
674
476
477
611
611
611
618
412
467
469
183
370
1156
                                                                                                                                                                                                                                                                 583
76358
                                                                                                                                                                                                                          25.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Freeman H.C.,
C., Zubak V.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RCH(2)NH(2) + H(2)0 +
                                                                                                                                                                                                                                                                  ME;
                                                                                                                                                                                                              66;
                                                                                                                                                                                                                         Score 320; DB 1;
Pred. No. 3.8e-17
                                                                                                                                                                                                                                                              N-LINKED (GLCNAC...) (P
N-LINKED (GLCNAC...) (P
N-LINKED (GLCNAC...),
30735390071DD18E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                 MANGANESE.
                                                                                                                                                                                                                                                                                                                                                                        COPPER.
                                                                                                                                                                                                                                                                                                                                                                                     TOPAQUINONE
                                                                                                                                                                                                                                                                                                                                                                                                                                      MANGANESE (VIA
                                                                                                                                                                                                                                                                                                                                                                                                                            MANGANESE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MANGANESE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMINE OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Copper; Manganese;
                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Guss J.M., Harvey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.
FALSE_NEG.
                                                                                                                                                                                                                                                                                                                                                                                                (VIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                [COPPER-CONTAINING]
                                                                                                                                                                                                              189;
                                                                                                                                                                                                                                                                                                                                                                                                 CARBONYL OXYGEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBONYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O(2) - RCHO + NH(3)
                                                                                                                                                                                                                                     Length 674;
                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           copper-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TPQ; Glycoprotein;
                                                                                                                                                                                                                                                                                          (PROBABLE).
                                                                                                                                                                                                                                                                                                                                                                                                                                       OXYGEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ι.,
                                                                             -AETVLVV
                                                                                                                                                                                                              90;
                                                                                                                                                                                                           Gaps
                                                                                                       351
                                                  403
                                                                           462
                                                                                                                                                                                                           20;
```

```
Qy 514 HTLGTŸHTHSAHFKVDLDVAGLENWVWAEDMVFVPM.----AVPWSPEHQLQRLQVTR 566

| Completed: May 20, 2003, 11:34:58
```

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                   Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
       3517
3478
1404.5
1032
649
615.5
472.5
385
381
372.5
368.5
358.5
357.5
353.5
                                                                                                                                                                                                                                                                                                                                                                                                                             Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       May 20, 2003, 10:12:24 ; Search time 52.6446 Seconds (without alignments) 2986.328 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-081-408-2
4095
1 MNQKTILVLLILAVITIFAL.....QAAACAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       671580 seqs, 206047115 residues
            885.99
1155.34
115.00
115.00
115.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
105.00
1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPTREMBL_21:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.5
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sp_plant:*
sp_rodent:*
sp_virus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sp_archea:*
sp_bacteria:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sp_organelle:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sp_mammal: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sp_invertebrate: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sp_fungi:*
                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
          DB
                                                           40
                                                                                                                                   11
10
16
10
     Q9TTK6
Q9TTK6
Q9C05
Q9C05
Q9C06
Q9C06
Q9C06
Q9C07
Q9C97
Q9C97
Q9C97
Q9C97
Q9C97
Q9C97
Q9C97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         671580
Q9r055 mus musculu
Q8vc36 mus musculu
Q8vc36 mus musculu
Q8r229 mus musculu
Q95x16 pichia past
Q920k6 cavia porce
Q9cw16 mus musculu
Q9c6v7 arabidopsis
Q98yx2 rhizobium 1
Q4852 arabidopsis
Q97xm1 sulfolobus
Q9ueu7 homo sapien
Q9st12 arabidopsis
Q9hbm7 homo sapien
Q23349 arabidopsis
Q8w1c1 brassica ju
                                                                                                                                                                                                                                                                                                                                                                               Q9ttk6 bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                             Description
```

ALIGNMENTS

D Y MBO	SQ	DR DR	ק ק ק	D DR	RL 2	9 R	RA RA	I R	0 x	86	38	so	o c	T T	DT	DT.	ð E	RESULT Q9TTK6
Query Match 85.9%; Score 3517; DB 6; Length 763; Best Local Similarity 85.2%; Pred. No. 3.2e-280; Best Local Similarity 85.2%; Pred. No. 3.2e-280; Matches 650; Conservative 44; Mismatches 69; Indels 0; Gaps Matches 650; Conservative 44; Mismatches 69; Indels 0; Gaps 1 MNQKTILVLLIAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLF 60	uctase. 763 AA;	PRINTS; PRO0766; CUDAOXIDAGE. PROSITE; PS01164; COPPER_AMINE_OXID_1; UNKNOWN_1. PROSITE: PS01165; COPPER_AMINE_OXID_2; 1.	Pfam; PF02173; Cu_amine_oxidN3; 1. Pfam; PF02728; Cu_amine_oxidN3; 1. Pfam; PF02728; Cu_amine_oxidN3; 1.	Interpro: IPR000269; CuNH_oxidase.	Submitted (OCT-1998) to the EMBL/GenBank/DDBJ databases.	oning of semicarbazide-sensitive	Iwabuki H., Matsumura K., Mure M., Kuroda S., Tanizawa K.;		NCBI_TaxID=9913;	Bovidae; Bovinae; Bos.	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia: Euthoria: Cetartiodactyla: Buminantia: Decora: Boyoidea:	Bos taurus (Bovine).	SSAO.	20,	(TrEMBLrel.	01-MAY-2000 (TrEMBLrel. 13, Created)	OPTIK6: PRELIMINARY; PRI; /53 AA.	1

0;

```
PROSECUTAR OS MUCOS MUCO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                        O9R055 PRELIMINARY;
O9R055;
O1-MAY-2000 (TrEMBLrel. 13, C:
O1-MAY-2000 (TrEMBLrel. 13, L:
O1-MAR-2002 (TrEMBLrel. 20, L:
Copper amine oxidase (EC 1.4.:
AOC3.
Moldes M., Feve B., Pairault J.;

"Molecular cloning of a major mRNA species in murine 3T3 actions differentiation-dependent expression, regulation, identification as semicarbazide-sensitive amine oxidase.", 1910. Chem. 274:9515-9523(1999).

-I. CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) = RCHO + H(2)O(2).

-I. COFACTOR: COPPER AND TOPAQUINONE (BY SIMILARITY).
                                                                                                                                           SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE-99194802; PubMed-10092636;
MEDLINE-99194802; Pairault J.;
                                                                                                                                                                                                                                                     Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                    NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SDFINNETIAGKDLVAMVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSGAIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APRTLHDAFCVFEQNKGLPLRRHHSDFISQYFGGVVETVLVFRSVSTLLNYDYVWDMVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RGYRIQTVSFAGRPLPQNSSTERAISWGRYQLAVTQRKETEPSSSSVFNQNDPWTPTVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PNGAIEVKFHATGY ISSAFFFGTAQKYGNQVRENTLGTVHTHSAHYKVDLDVGGLENWVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADLSREELTAVMSFLTQKLGPDLVDAAQARPSDNCIFSVELQLPPKAAALAHLDRRSPPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSINSA
                                                                                                                                                                                                                                                                                                                                            , Created)
, Last seque), Last anno
                                                                                                                                                                                                                                                        Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                        765
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₹
                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                763
                                                                                                                                                                                                                                                        Euteleostomi;
; Murinae; Mus
                                                                                                        adipocyte
n, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      600
```

```
DR EMBL; AF115411; BELONGS TO THE COPPER/T DR MGG; MGI:1306797; AoC3.

DR Interpro; IPR000269; CuNH_oxidase.

DR Pfam; PF01179; Cu_amine_oxid: 1.

DR Pfam; PF02727; Cu_amine_oxidN2; 1.

DR Pfam; PF02728; Cu_amine_oxidN2; 1.

DR Pfam; PF02728; Cu_amine_oxidN3; 1.

PR PROSTITE; PS01164; COPPER_AMINE_OXID_1; 1.

R PROSTITE; PS01165; COPPER_AMINE_OXID_2; 1.

QCOPPER; Oxidoreductase; TPO.

1 COPPER; Oxidoreductase; TPO.

2 SEQUENCE 765 AA; 84574 ***
RESULT 3
Q8VC36
ID Q8VC36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                              Š
                                                                                                                                         밁
                                                                                                                                                              20
                                                                                                                                                                                    밁
                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                    δδ
                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Sir
Matches 635;
                                                                                                                                          601
                                                                                                                                                                                    541
                                                                                                                                                                                                          541
                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                      721
                                                                         721
                                                                                                199
                                                                                                                     661
                                                                                                                                                               601
                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MNQKTILVLLILAVITIFALVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLF
                                                                                                                                                                                                                                                                                                                                                                AREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDID
                                                    DSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSH
                                                                                               AEDMYFYPMAYPWSPEHQLQRLQYTRKLLEMEEQAAFLYGSATPRYLYLASNHSNKWGHP
                                                                                                                                                                                                                                           PSGAIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW
                                                                                                                                                                                                                                                                                       APKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFH
                                                                                                                                                                                                                                                                                                                      YEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VREALAIIFFGGQPKPNVSELVVGPLPHPSYMRDVTVERHGGPLPYYRRPVLDREYQDIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MTQKTTLVLLALAVITIFALVCVLLAGRSGDGGGLSQPLHCPSVLPSVQPRTHPSQSQPF
                                                                                                                                                     RGYRIOMLSFAGEPLPONSSMARGFSWERYQLAVTORKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                                                                           APKTLRDAFCVFEQNQGLPLRRHHSDFYSHYFGGVVGTVLVVRSVSTLLNYDYIWDMVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADLSPEELTAVMSFLTKHLGPGLVDAAQARPSDNCVFSVELQLPAKAAALAHLDRGGPPP
                                                                                                                                          RGYRIQILSFAGKPLPQESPIEKAFTWGRYHLAVTQRKEEEPSSSSIFNQNDPWTPTVDF
                                                                                                                                                                                      AEDMAFVPTIVPWQPEYQMQRLQVTRKLLETEEEAAFPLGGATPRYLYLASNHSNKWGHR
                                                                                                                                                                                                                                 PNGATEVKFHATGY ISSAFFFGAGEKFGNRVGAHTLGTVHTHSAHFKVDLDVAGLKNWAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       84.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 3478; D
Pred. No. 5.1e
60; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4252854759F316C7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COPPER/TOPAQUINONE OXIDASE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 11;
5.1e-277;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67;
                                                                           762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CRC64;
                                                      762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
```

PRELIMINARY;

PRT;

751

Å

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                           밁
                                                                                   õ
                                                                                                                     밁
                                                                                                                                                 Š
                                                                                                                                                                                 맑
                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databases.
EMBL; BC021880; AAH21880,1; -
InterPro: IPR003439; ABC_transportr.
InterPro: IPR000269; CuNH_oxidase.
Pfam; PF01727; Cu_amine_oxid(; 1.
Pfam; PF02727; Cu_amine_oxid(n; 1.
Pfam; PF02728; Cu_amine_oxid(n); 1.
PF03728; Cu_amine_oxid(n); 1.
PROSITE; PS00164; COPPER_AMINE_OXID_1; UNKNOWN_1.
PROSITE; PS01164; COPPER_AMINE_OXID_2; UNKNOWN_1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; UNKNOWN_1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; UNKNOWN_1.
PROSITE; PS01164; COPPER_AMINE_OXID_2; UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         08VC36;
01-MAR-2002 (TrEMBLrel. 20, Created)
01-MAR-2002 (TrEMBLrel. 20, Last sequence up
01-JUN-2002 (TrEMBLrel. 21, Last annotation
Similar to amiloride binding protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Strausberg R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rissue-colon;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                         553
                                                                                                                     483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 165
 603
                                                           543
                                                                                                                                                    493
                                                                                                                                                                                 423
                                                                                                                                                                                                                436
                                                                                                                                                                                                                                            363
                                                                                                                                                                                                                                                                         376
                                                                                                                                                                                                                                                                                                      303
                                                                                                                                                                                                                                                                                                                                   318
                                                                                                                                                                                                                                                                                                                                                                249
                                                                                                                                                                                                                                                                                                                                                                                             277
                                                                                                                                                                                                                                                                                                                                                                                                                          191
                                                                                                                                                                                                                                                                                                                                                                                                                                                       217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                  SPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLP 104
               EPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSSVFNQNDPWAPTVDFSDFI-NNETIAG
                                                                         WSPEHQLORLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAG
                                                                                                                    GYVHATFYTPEGLRHGTRLQTHLLGNIHTHLVHYRVDLDVAGTKNSFRTLKTKLENITNP
                                                                                                                                      GYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVP
                                                                                                                                                                                 TGVPLRRHEDSNFKGGFNFYAGLKGYVLVLRTTSTVYNYDYIWDFIFYPNGVMETKMHAT
                                                                                                                                                                                             OGLPLRRHHSDLYS---HYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYAT
                                                                                                                                                                                                                                         TPAGMQTKYIDVGWGLGSVTHELAPGIDCPETATFLDAFHYYDSDGPVLYPRALCLFEMP
                                                                                                                                                                                                                                                         SPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQN
                                                                                                                                                                                                                                                                                                                                                                                                                       GVESGQRRSWLIVQRYVE--GYFLHPTGLEILVDHSSTDVQDWRVEQLWYNGKFYNSPEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PYHRRPYLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRG-----RNLYTMTTAPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KKNVLKFLDEGRKSPVREARAIIFFGAQDHPNVTEFAVGPLPRPCYVQALS-PRPGHHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPL 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TPSAVTTPH-DKARIFADLSPQEIKAVHSFLMSRKELGLESSKNLTLAKNSVFLIEMLLP
QVLPPGWQEERAVTWARYPLAVTKYRESERYSSSLYNQNDPWDPPVVFEEFLRNNENIEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SWSSRPISTAEY-DLLYHMLNRAITPL-----HQFFLDTTGFSFLGCDDRFLTFTDVAPR
                                                          WSPSHSLVQPTLEQTQYSHEHQAAFRFGQTLPKYLLFSSPQKNRWGHRRSYRLQIHSMAE
                                                                                                                                                                                                                                                                                                                                                             LAQKYAVGEVEAVVLEE-----VVLEDPLPGATEQPPLFSSYKPRGEFHTPVTVAGPHV
                                                                                                                                                                                                                                                                                                                                                                                           LEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPG-PAPPL-----QFY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34.3%; Score 1404.5; DB 11; Length 39.8%; Pred. No. 1.4e-106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 1.4e
?7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 l.4e-106;
nes 270;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190
                                                                                                                                                                                                                                                                       435
                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                               375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       77
                                                                                                                    542
                                                                                                                                                                              482
                                                                                                                                                                                                             492
                                                                                                                                                                                                                                           422
                                                                                                                                                                                                                                                                                                                                                                                           317
                                                                                                                                                                                                                                                                                                                                                                                                                       248
                                                                                                                                                                                                                                                                                                                                                                                                                                                     276
                                                          602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15;
```

```
RESULT PER 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                           οy
                                                                                                                                                                                                                                                                     ρy
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
  밁
                                                   Š
                                                                                                             밁
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 199;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q8R229 PRELIMINARY; PRT; 447 AA. 08R229; Q8R229; Q1-JUN-2002 (TIEMBLrel. 21, Created) 01-JUN-2002 (TIEMBLrel. 21, Last sequence update) 01-JUN-2002 (TIEMBLrel. 21, Last annotation update Hypothetical 51.3 kDa protein (Fragment). Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrat: Mammalia; Eutharia; Rodentia; Sciurognathi; Murid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Strausberg R.;
Submitted (FEB-2002) to the
EMBL; BC022627; AAH22627.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hypothetical protein NON_TER 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-COLON;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        722
  420
                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LVAWVTAGELHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLNHVQ--RWIPENRDCLVS-PPFSYNG 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KDLVAMVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDA
                                                   CEVNPLACLPQAAACAPDLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACEVNPLACLPQAAACAPDLPAFSHGG 759
NHVQ -- RWIPENRDCLVS - PPFSYNG
                                                                                                          LVAWVTVGFLHIPHSEDVPNTATPGNCVGFLIRPFNFFEEDPSLASRDTVIV-WPQDNGL
                                                                                                                                                                                                                       LPPGWQEERAVTWARYPLAVTKYRESERYSSSLYNQNDPWDPPVVFEEFLRNNENIENED
                                                                                                                                                                                                                                                 LPQNSSMARGFSWERYQLAVTQRKEEEPSSSSSVFNQNDPWAPTVDFSDFI-NNETIAGKD
                                                                                                                                                                                                                                                                                                                                 PSHSLVQPTLEQTQYSHEHQAAFRFGQTLPKYLLFSSPQKNRWGHRRSYRLQIHSMAEQV
                                                                                                                                                                                                                                                                                                                                                              PEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEP
                                                                                                                                                                                                                                                                                                                                                                                                                                           VHATFYTPEGLRHGTRLQTHLLGNIHTHLVHYRVDLDVAGTKNSFRTLKTKLENITNPWS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGMQTKYIDVGWGLGSVTHELAPGIDCPETATFLDAFHYYDSDGPVLYPRALCLFEMPTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EDLVAWVTVGFLHIPHSEDVPNTATPGNCVGFLIRPFNFFEEDPSLASRDTVIV-WPQDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               447 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51265 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Score 1032; DB 11;
; Pred. No. 2.8e-76;
78; Mismatches 161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E556E4AA2525D1D1 CRC64;
  442
                                                   759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       œ
œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         731
                                                                                                                                                                                                                                                                                673
                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                        614
                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 377
                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ú
```

RESULT Q96x16 ID Q9 AC Q9 DT 01

ഗ

Q96X16 Q96X16; 01-DEC-2001

PRELIMINARY;

19,

Created)

787 AA

SOURCE SERVING SOURCE

```
밁
                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Best L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kucha J.A., Dooley D.M.;
"Cloning, sequence analysis, and characterization of toxidase' from Pichia pastoris.";
J. Inorg. Biochem. 83:193-204(2001).
EMBL; AP358434; AAK49976.1; -
Interpro; IPR000269; CUNH_Oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
SEQUENCE 787 AA; 89690 MW; D779EBF2BF766745 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pichia pastoris (Yeast)
Eukaryota; Fungi; Ascom
Saccharomycetales; Sacc.
NCBI_TaxID=4922;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=21131996; PubMed=11237259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-DEC-2001 (TrEMBLrel. 01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lysyl oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     319
                                                                                                                                                                595
                                                                                                                                                                                                                                                                                                                                                                                                                                                      379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  104
                                                                                                                       604
                                                                                                                                                                                                                                             545
                                                                                                                                                                                                                                                                                      493
                                                                                                                                                                                                                                                                                                                                                                                                             426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ma.
Local L
201;
  714
                                                                                                                                                                                                    553
                                                                                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                                                                                                                     438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DMGCHSAAPQLHDPATGATVDYGTCNINTENDAENLVPTGFFFK-----FDMTGRDVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NKTEALTYLDEDGDLPPRNARTVVYFGEGEEGYFEELKVGPLP---VSDETTIE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLP
DPSFYSADSIYFRGDQD
                                                                             WAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDE
                                                                                                                                             KDVDVEYPWAPGTVYNTKQIAREVLEKEDFNGINWPENGQGILLIESA-----EET
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ELIAEYGSDDFFNOHTFYSDISYGVGNRFS-LVPGYDCPATAGYFTTDTFEYDEFYNRTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWH-FLLESQAPKTI 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DRKSPRLVEPEGRRWAYDGEEEYFSWMDWGFYTSWSRDTGISFYDITFKGERIVYELSLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --APPLOFYPOGPRFSVOGSRVASSL--WTFSFGLGAFSGPRIFDVRFOGERLVYEISLO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QWKMLEYIYNNKVYTSAEELYEAMQKDDFVTLPKIDVDN---LDWTVIQRNDSAPIRHLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RWTIQKVFYQGRYYDSLAQL-EAQFEAGLVNVVLIP-DNGTGGSWSLKSPVPPGP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SFYNTNGKSKLPFEVGHLDRIKSAAKSS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PKAAALAHLDRGSPPPAREALAIVFFGROPOPNVSELVVGPLPHPSYMRDVTVERHGGPL 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APKTNIWT-----SLAKEEVQEVLDLLHSTY--NITEVTKADFFSNYVLWIETLKP
                                      YDPPVNFNAFLDDESLDGEDIVAWVNLGLHHLPNSNDLPNTIFSTAHASFMLTPFNYFDS
                                                                                                                   NSFGNPRAYNIMPGGGGVHRIVKNSRSGPETQNWARSNLFLTKHKDEELRSSTALNTNAL
                                                                                                                                                                                                                                           VFVPMAVPWSPEHQLQRLQVTRKLLEMEE-----
                                                                                                                                                                                                                                                                                 EVSVRAAGY I QAGYWNPETSAPYGLK I HDVLSGSFHDHVLNYKVDLDVGGTKNRASKYVM
                                                                                                                                                                                                                                                                                                                          EIRFYATGYISSAFLFGAT-GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDM
                                                                                                                                                                                                                                                                                                                                                                --SYCVFENQEDYSLLRHTGASYSAI----TQNPTLNVRFISTIGNYDYNFLYKFFLDGTL
                                                                                                                                                                                                                                                                                                                                                                                                       RDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAI 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -QSGDRATWFGLYY-------NISGAGFFLHHVGLELLVNHKALDPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ascomycota; Saccharon; Saccharonycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15.8%;

    Last sequence update)
    Last annotation update)

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 649; DB 3
Pred. No. 2e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Saccharomycotina; Saccharomycetes; cetaceae; Pichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches 320;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----FLNKNLNTTIMRDVLEGLIGVPYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                         QAAFLVGSATPRYLYLASNHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                         594
                                                                                                                                                                                                                                                                                 552
                                                                                                                                                                                                                                                                                                                        544
                                                                                                                                                                                                                                                                                                                                                                                                                                                  437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          257
```

δÃ

δÃ

Š В

Ş 8 δÃ 밁 οy 밁 Š δÃ 밁 Ş В δõ 밁 δ 문 ş 밁 Q

밁

```
RESULT OPENING OF STREET O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A PROUDT ON THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q920K6
Q920K6;
01-DEC-2001
01-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9CW16;
Q9CW16;
Q1-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last annotation updat)
1600012D06R1k protein (Fragment).
ABP1 OR 160012D06R1K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cavia porcellus (Guinea pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Rodentia; Hystricognathi; Cavii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-DEC-2001 (TrEMBLrel. 19, Last sequence up 01-MAR-2002 (TrEMBLrel. 20, Last annotation Diamine oxidase (EC 1.4.3.6) (Fragment).
STRAIN-C57BL/6J; TISSUE-PLACENTA; MEDLINE-21085660; PubMed-11217851; Kawai J., Shinaqawa A., Shibata K., Yoshino M., Itoh M., Ishii Arakawa T., Hara A., Fukunishi Y., Konno H., Kadochi J., Fukuda Alzawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kitanaka J., Kitanaka N., Takemura M.; "Cloning of a cDNA for guinea-pig diamine oxid Submitted (OCT-2001) to the EMBL/GenBank/DDBJ EMBL; AB073298; BAB70498.1; "
                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Oxidoreductase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN-HARTLEY; TISSUE-SMALL INTESTINE;
Kitanaka J., Kitanaka N., Takemura M.;
"Cloning of a cDNA for guinea-pig diamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=10141;
                                                                                                                                                                                                                                                               SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NON_TER
                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                491 ATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGYVHATFYTPEGQRYGTRLHTHLLGNIHTHLLHYRVDMDVAGTKNSFQTLQMKLENIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENSRDTTQQVFYTYDDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NPWSPGHHLVQPTLKQSRYSQERQAAFRFGQTLPKYLLFTSREKNRWGHERGYRLQIHSM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AEQVLPAGLPEERAITWARYPLAVTKYRESELCSSSIYNQNDPWDPPVVFQKFLHNNEDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PS01165; COPPER_AMINE_OXID_2; UNKNOWN_1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                271 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                               N.A.
                                                                                                                                                                                                                                                                                                                                                                      Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31323 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 615.5;
Pred. No. 2.
                                                                                                                                                                                                                                                                                                                                                                   Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CEC46D64E4AA135D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .3e-42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         oxidase (hist
DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Caviidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (histaminase).";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                      R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
```

```
RESULT

OPECATO

OPEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H., Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J., Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T., Schriml L.M., Wagner L., Washio T., Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G., Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F., Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M., Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H., Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P., Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N., Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F., Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L., Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S., Hayashiaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
Theologis A., Ecker J.R., Palm C.J., Federspiel N.A., Kaul S., White O., Alonso J., Altafi H., Araujo R., Bowman C.L., Brooks S.Y., Buebler E., Chan A., Chao Q., Chen H., Cheuk R.F., Chin C.W., Chung M.K., Conn L., Conway A.B., Conway A.R., Creasy T.H., Dewar K., Dunn P., Etgu P., Feldblyum T.V., Feng J.-D., Fong B., Fujii C.Y., Gill J.E., Goldsmith A.D., Haas B., Hansen N.F., Hughes B., Huizar L., Hunter J.L., Jenkins J., Johnson-Hopson C., Khan S., Khaykin E., Kim C.J., Koo H.L., Kremenetskaia I., Kurtz D.B., Kwan A., Lam B., Langin-Hopper S., Lee A., Lee J.M., Lenz C.A., Li J.H., Li Y.-P., Lin X., Liu S.X., Liu Z.A., Luros J.S., Maiti R., Marziali A., Lin X., Liu S.X., Liu Z.A., Luros J.S., Maiti R., Marziali A., Militscher J., Miranda M., Nguyen M., Nierman W.C., Osborne B.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09C6V7 PRELIMINARY; PRT; 741 AA.
09C6V7;
01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat)
Copper amine oxidase (EC 1.4.3.6).
E27M3_13.
                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosid eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nature 409:685-690(2001).
EMBL; AK005423; BAB24017.1; -.
MGD; MGI:1923757; Abp1.
                                                                                                                                                                                                                                                                                           MEDLINE=21016719; PubMed=11130712;
                                                                                                                                                                                                                                                                                                                        STRAIN-CV.
                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana (Mouse-ear cress).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hayashizaki Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Functional annotation of a full-length mouse cDNA collection.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     572 EEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S-PPFSYNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LAVIKYRESERYSSSLYNQNDPWDPPVVFEEFLRNNENIENEDLVAMVTVGFLHIPHSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFLHIPHAED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VPNTATPGNCVGFLIRPFNFFEEDPSLASRDTVIV-WPQDNGLNHVQ--RWIPENRDCLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                   COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       204 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23861 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 472.5;
Pred. No. 8.6e
24; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       49FA7CBD6CD0555C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; DB 11; Length .6e-31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                           eudicots; Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                   밁
                                                                                                                          Ş
                                                                                                                                                                                   밁
                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    104
                                                                                                                                                                                                                                                                                                                                                                                            447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99
                                                                                   EVGYRLLHGPASEGPLLAQDDYPQIRAAFTNYNVWITPYNNTEVWASGLYADRSQGDDTL
                                                                                                                                  PRGYR-IQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVF---NQNDP--
     -WAPTVDESDFINNETIAGKDLVAWVTAGELHIPHAEDIPNTVTVGNGVGFELRPYNFF
```

```
Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidn2; 1.
Pfam; PF02728; Cu_amine_oxidn3; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_1;
PROSITE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pai G., Peterson J., Pham P.K., Rizzo M., Rooney T., Rowley D., Sakano H., Salzerg S.L., Schwartz J.R., Shinn P., Southwick A.M. Sun H., Tallon L.J., Tambunga G., Toriumi M.J., Town C.D., Utterback T., Van Aken S., Vaysberg M., Vysotskaia V.S., Walker Wu D., Yu G., Fraser C.M., Venter J.C., Davis R.W.; "Sequence and analysis of chromosome 1 of the plant Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- COPACTOR: COPPER AND TO:
-!- SIMILARITY: BELONGS TO:
EMBL; AC074360; AAG60154.1;
HSSP; Q43077; 1KSI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nature 408:816-820(2000).
-!- CATALYTIC ACTIVITY: RCH(2)NH(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                159 YHNVKSPPRQAFVIARDHGK---TRE--IVVDFA--SQAIVSEKIHVG--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          50 PWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVD-----AAQARPSDNCVFS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  H(2)O(2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PPPHP-----FDPLTEIELNLVRNIINERYPIGLEHRFTFQYVGLNEPDKSLVLSWVSSQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TMTTAPRGLQSGDRATWFG-------LYYNISGAGFFLHHVGLELLVNHKALDPA
                                                  GLTGVLEVKPVKYVNTSEI-KEDDIHGTIVADNTIGVNHDHFVTYRLDLDIDGTDNSFVR
                                                                                               YATG----YISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWA
                                                                                                                                                 CIFEKYAG-DIMWRHTEIEIPGLKVRPDVSLVVRMVTTVGNYDXIVDYEFKPSGSIKIGV
                                                                                                                                                                                              CVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRF
                                                                                                                                                                                                                                                PYMDPSEDWYFRTFFDCGEFGCGQYAVSLEPYTDCPGNAAFMDGVFASQDGTPIKITNVM
                                                                                                                                                                                                                                                                                   IYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAF
                                                                                                                                                                                                                                                                                                                                                                                        YPOGPRFSVQGSRVASSLWTF--SFGLGA---FSGPRIFDVRFQGER-LVYEISLQEALA
                                                                                                                                                                                                                                                                                                                                                                                                                                          KVT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWS-LKSPVPPGPAPPLQF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VVTTSTMG-----WFGEAKPERLIKKRPFYLNGSVNTYLRPIEGMTIIVN---LDQM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---NGYPM----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -VELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELV-VGPLPHPSYMRDVT
EDMVF - - VPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGH
                                                                                                                                                                                                                                                                                                                                          QSEGPGFKIDGHTNRWANWEFHMSFDVRAGLVISLASIFDMDVNKYRQVLYKGHLSEIFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         741 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COPPER AND TOPAQUINONE (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------LTIDEQQATSELVLKFKPFRDSI-----RRRGLNVSEV
                                                                                                                                                                                                                                                                                                                                                                                                                                          ----KFRDRFTSPLPNA----KGTEFRISKLKPPFGPSLQNAVLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84279 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 385; DB 10; Length Pred. No. 9.2e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB69E786864BB5A8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COPPER/TOPAQUINONE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H(2)0 +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RCHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Walker M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                    564
                                                                                                                                                                                                 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98
                                                                                                 541
                                                                                                                                                 505
                                                                                                                                                                                                                                                                                             429
                                                                                                                                                                                                                                                                                                                                               386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      237
```

ω ...

-NTPRKSYWTTKRLKAEE

--LLVVNPSRKTKHGN

607

```
RESULT
Q989X2
                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
 δõ
                                                        Š
                                                                                     밁
                                                                                                             Š
                                                                                                                                          밁
                                                                                                                                                                   δõ
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                             В
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-OCT-2001 (TrEMBLrel.
01-OCT-2001 (TrEMBLrel.
01-MAR-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q989X2;
01-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Complete
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kaneko T., Nakamura Y., Sato S., Asamizu E., Kato T., Sasamc Watanabe A., Idesawa K., Ishikawa A., Kawashima K., Kimura T. Kishida Y., Kiyokawa C., Kohara M., Matsumoto M., Matsuno A. Mochizuki Y., Nakayama S., Nakazaki N., Shimpo S., Sugimoto Takeuchi C., Yamada M., Tabata S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rhizobium loti (Mesorhizobium loti)
Bacteria; Proteobacteria; alpha sub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q989x2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN=MAFF303099;
MEDLINE=21082930;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria; Proteobacteria; alpha su
Phyllobacteriaceae; Mesorhizobium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mesorhizobium loti."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=381;
                                                                                                                 349
                                                                                                                                                                                                    182
                                                                                                                                                                                                                                                          130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Complete genome structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                899
    468
                                                                                                                                                                        290
                                                                                                                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  712 DEDP 715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                 80
                                                                                                                                                                                                                                                                                                                                                                         31
                                                                                                                                                                                                                                                                                                                                                                                                63 LSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAR 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EQNP
LLNYDYVWDTVFHPSGAIEIRFYATGYI-SSAFLFGATGKYGNQVSEHTLGTVHTHSAHF
                                                                                                                                                                                                    EN-
                                                                                                                                                                                                                 YNISGAGFFLHHY-GLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVV 289
                                                                                                                                                                                                                                                      V--RDAPD---FIAAC---SRRGINDMSQVCIDPWSAGNFGVPDEEGRYIAHVFAWLRLR
                                                                                                                                                                                                                                                                                     IFNRELPQASGLLHHCCFYKHRGRNLVTMTTA-----
                                                                                                                                                                                                                                                                                                                                                                      LSKAELLSVFEIVRD------DAAFGK--DFYFETVEL-LEPAKGSVRSFRRGN-PISR 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AVWSQ----
                                                      ATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMST
                                                                                  LHDISYDGRPVVYRASLVEMVVPYGTPDRGHFRKNVFDIGEYGIGKLANSLKLGCDCLGA
                                                                                                             IFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDCPYL 407
                                                                                                                                                                                                                                                                                                              KARVNLF -- RIDRDGVWRLVVS -----LDENKVEK - SEYLASAKPMIQLEQFTAIEDA 129
                                                                                                                                                                                                                                                                                                                                        EALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQM 182
                            IQYLDANLATMTGDVVTIENAICIHEEDAGLLWK--HWDFRSNHVESRRARKFVVSCICT
                                                                                                                                                                  LIPDNGTGGSWSLKSPVPPGPAPPLQF-YPQGPRFSVQGSRVASSLWTFSFGLGAFSGPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AP003008 BAB52572.1; -
Pro; IPR000269; CUNH_Oxidase.
PF01179; CU_amine_oxid; 1.
PF02727; CU_amine_oxidN2; 1.
PF02728; CU_amine_oxidN3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                 --ENFYAHPIGGLNAIVDIRTNRVLRVDDHEII-----PIPMKEANYEAEFIK--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7:331-338(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       654 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                         -----EPRQPYKPLNIAQPEGVSFNLDGHQLSWDKWAFRVGFNAREGLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=11214968;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RNRKIEKTDIVMWYTVGFHHVPCQEDFPTMPTLFG--GFELRPTNFF 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73153 MW; 09D68CC38B89D712 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                           9.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18,
20,
                                                                                                                                                                                                                                                                                                                                                                                                                              97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of the nitrogen-fixing symbiotic bacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                           Score 381; DB 16;
Pred. No. 1.6e-22;
7; Mismatches 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                              324;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                  ----PRGLQSGDRATWFGLY 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rhizobiaceae group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sasamoto
                                                                                                                                                                                                                                                                                                                                                                                                                            112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ß
                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                  333
                                                                                                                                                                  348
                                                                                                                                         273
                                                                                                                                                                                               229
                                                                                                                                                                                                                                                                                                                                                                                                                              27;
```

```
RESULT 10
048552
밁
                       Ş
                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                  Matches
                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              048552;
01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
                                                                                                               Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
Copper; Oxidoreductase; Signal; TP0.
SIGNAL 1 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheo; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                    SEQUENCE
                                                                                                                                                                                                         HSSP; Q43077;
                                                                                                                                                                                                                      EMBL; AF034579; AAB87690.1;
                                                                                                                                                                                                                                                                                       ataol gene encoding an H2 Plant J. 13:781-791(1998)
                                                                                                                                                                                                                                                                                                                                            STRAIN=LANDSBERG ERECTA;
MEDLINE=98345995; PubMed=9681017;
                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                            "Molecular and functional studies of copper Arabidopsis thaliana.";
                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-96227319; PubMed-Moller S.G., McPherson M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-LANDSBERG ERECTA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arabidopsis thaliana (Mouse-ear cress).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Copper amine ATAO1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     048552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=3702
                                                                                                                                                                                              InterPro; IPR000269; CuNH_oxidase
                                                                                                                                                                                                                                                                                                                                 Moller S.G.,
                                                                                                                                                                                                                                                  ·!- COFACTOR: COPPER AND TOPAQUINONE
                                                                                                                                                                                                                                                                                                                   Developmental expression and biochemical analysis of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   392
74
                          99
                                                                                                                                                                                                                                                                H(2)0(2)
                                                                                                                                                                                                                                                                           CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) =
LDLEEPNKSHVLQWLSPNPSKKPPPPRRRSFVVVRAGGQTYELIIDLITSKIASSRIYTG 133
                        VELQLPPKAAALAHL----DRGSPPPAREALAIVFFGRQPQPNVSELVVGPLP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QPCI--FTGFKLMPSGFFDQNP-----GIDLVGETNAASCHAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TQ-RKEEEPSSSSYFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VANYEYGIFWYLHTDGAIEFELKATGIINTTACQPGKPGRYGKEVSPGVLGHIHQHIFCA 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TAFDPEERYPAGEYMNHSDGSGGVADFVK--NDRPLVDEDLVLWHTFGVHHQVRPEDFPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RLDMSVDGDRNSV----VELNTYAAPEGPDNPHGNAFYEEETVLPSELQACRR-ANLETH 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQ-------LQRLQVTRKLLEMEEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAWKIASA - - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 =
                                                                                                     899
                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                 McPherson M.J.;
                                                                                                                                                                                                             1KSI
                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed-8654815;
                                                                                                    75591 MW;
                                                              9.18;
                                                                                                                                                                                                                                                                                                                                                                                                23:6308-6308(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -DRKNHVGEPTAYKLEATHPVTPYVAAHSPSGRRSTFTSNHLWV
                                                                                                                                                                                                                                                                                                    H202-generating
                                                                                                                                                                                                                                    THE
                                                 Score 372.5;
Pred. No. 8.46
39; Mismatches
                                                                                                 POTENTIAL. ; E439F444628001DF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                    UINONE (BY SIMILARIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     668
                                                                                                                                                                                                                                                                                                      diamine
                                                 nes 275;
                                                                                                                                                                                                                                                   SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>:</u>
::
                                                                          DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                            amine
                                                                                                                                                                                                                                                                                                     oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                          oxidase
                                                                                                                                                                                                                                       OXIDASE
                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tracheophyta;
                                                                                                                                                                                                                                                                           RCHO + NH(3)
                                                 157;
                                                                           668;
                                                                                                                                                                                                                                                                                                                   Arabidopsis
                                                                                                                                                                                                                                       FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rosidae
                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         557
                                                 27;
```

```
Q97XM

ID Q97XM

AC Q97XM

AC Q97XM

AC Q97XM

AC Q97XM

AC Q97XM

O1-OC

DT 01-JU

DT 01-JU

DT Amine

GN TYNA

OS Sulfo

OC Archa

OC Sulfo

OC 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           吕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
P SEQUENCE FROM N.A.

C STRAIN-ARCC 35092 DSM 1617 / P2;

X MEDILINE-2133296; PubMed=11427726;

X MEDILINE-2133296; PubMed=11427726;

A Avayez M.J., Chan-Welher C.C.-Y., Clausen I.G., Curtis B.A.,

A Mayez M.J., Chan-Welher C.C.-Y., Clausen I.G., Curtis B.A.,

A De Moors A., Erauso G., Pletcher C., Gordon P.M.K.,

A Heikamp-de Jong I., Jeffries A.C., Kozera C.J., Medina N., Peng X.

Thi-Ngoc H.P., Redder P., Schenk M.E., Theritault C., Tolstrup N.,

A Charlebols R.L., Doolittle W.F., Duguet M., Gaasterland T.,

A Garrett R.A., Ragan M.A., Sensen C.W., Van der Oost J.;

"The complete genome of the crenarchaeon Sulfolobus solfataricus

The Complete genome of the Crenarchaeon Sulfolobus solfataricus

REPFOC. Natl. Acad. Sci. U.S.A. 98:7835-7840(2001).

REMBL; AE006782; AAK41902.1;

REMBL; AE006782; AAK41902.1;

REMBL; AE006782; CUNH_Oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q97XM1 PRELIMINARY; PRT; 660 AA. Q97XM1; Q1-OCT-2001 (TrEMBLrel. 18, Created) 01-OCT-2001 (TrEMBLrel. 18, Last sequence update) 01-JUN-2002 (TrEMBLrel. 21, Last annotation updat Amine oxidase (copper-containing) (tynA) (EC 1.4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sulfolobus solfataricus
Archaea; Crenarchaeota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sulfolobus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=2287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYNA OR SSO1692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDV------RFQGERLVYEIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NTVTVGNGVGFFLRPYNFFDEDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---AYDRSERWAGGF-YSDRSRGDDGLAVWSSRNREIENKDIVMWYNVGFHHIPYQEDFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NKKTKIGNTVGYRL----IPEHLPATSLLTDDDYPEIRAGYT--KYPVWVT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NHSNKWGHPRGYRIQMLSFAGEPLPQNS-----SMARGFSWERYQLAVTQRKEEEPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DGNGNSLVKAKLKTVRVTDVNKTSSRRKSYWTVVKETAKTEADGRVRLGSEPVELLIVNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGLENWVWAEDMVFVPMA-VPWSPEHOLORLOVTRKLLEMEEQAAFLVGSATPRYLYLAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KSGAIRVGVDLTGVLEVKATSYTSNEQI--TENVYGTQVAKNTIAVNHDHYLTYYLDLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PSGAIEI------RFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KMTNVMCVFEKN-GYGASFRHTEINVPGQVITSGAAEISLVVRMVATLGNYDYIVDWEFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VSETFVPYMDPTYEWYYRTFMDIGEFGFGRSAVNLQPLIDCPQNAAFFDGHVAGPDGTAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LQEALAIYGGNSPAAMTTRYYD-GGFGMGKYTTPLTRGVDCPYLATYYDWHFLLESQAPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PFSCNVSDTGFKILGNRVKWANWKFHVGFTARAGVTISTASVLDPRTKRFR--RVMYRGH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VD----SMQVVKYSDRFRKPLPEKE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLK-SPVPPGPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LNISEVSCIP-----FTVGWYGETTTRRELKASCFYRDGSVNVFTRPIEGITITID---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RNLVTMTTAPRGLQSGDRATWFG------LYYNISGAGFFLHHV-GLELLVNHKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HGFPSFTFIELFKASKLPLTY---PPFKKSILD------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -- HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VMPTLHG--GFTLRPSNFFDNDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SSSVFNQNDPWAPTVDFSD------FINNETIAGKDLVAWVTAGFLHIPHAEDIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Thermoprotei;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GNDFRKKHKPF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sulfolobales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ion update)
(EC 1.4.3.6).
                                                                                                        solfataricus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sulfolobaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              588
```

12

OPUEU7

O Q9UEU7;

O Q

update)

Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SQ DR DR
                                               Q
                                                                                                                              ₽
                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 9.0
Best Local Similarity 24.4
Matches 175; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_1;
PROSITE; PS01165; COPPER_AMINE_OXID_2;
Oxidoreductase; Complete proteome.
SEQUENCE 660 AA; 77136 MW; 413121DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        347
595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69
                                                                                                                                                                                                                                                                                                                                                                                                                                      GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |:||| | :| | :| | | :| | | | :| | | | :| | | | :| | :| | :| | | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :|
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIFDVRFQGER-----LVYEISLQEALAIYGGNSPAAMTTRXVDGG-FGMGKYTTPLTR 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LNEEEIRKSVEVLKROLN----LDAKVVK-----FFSVELKEPKKOEYLEWRNNKNIKIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAR
VDEDLVIWYTLGVEHVVRIEDWP--VMPVEMAGFRLIPDGFFDKNPTIYLPRQLRING
                                                         AGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRG
                                                                                                                              LPDDSYVRRRGAYINYHLWVTPYNEEERYASGDY-----PYLRANDGLPKYILKKRSI 594
                                                                                                                                                                   LPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSD-----FINNETI 669
                                                                                                                                                                                                                                                        NPVGNAFFAEENLLENEADARRHVNPQTGRYWKIVNIQKKNYLGLPVAYRLVPGHNVLPP
                                                                                                                                                                                                                                                                                                                                                                                             GTRVTPEVYAPIHIHFFNIRLNINVDGLRNRIY---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GKSEVRRNRRLVVSFWATLANYDYGFFWYFYQDGSIEFLVKLTGIINDDSISEKDPTPKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GNYDLYNCDCFGEVIYHLDVTRVSSNGTPIKIKKAICVHEEDFGVLWR--HTDLRS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          G-----VDC-PYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VDEELRGRRVAIG-YMW-VKKDIEDNGYGRPVHGLMPWVDLDKMEVIRIDDHGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VRNDKRVQEA------HVDCWAPG----H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ESL-VKYYNFQDR-KVYEAII-----SLDNNVVKEIRSIDAAY--PPITLDEFGECEKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQM 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -SPLPLQDANYTPEKLGKIFGDDLKPIEIRQPLSSSIKINGWEISWYRWRLRIGYTPREG
                                                                                                                                                                                                                                                                                                     -----LLEMEEQAAFLYGSATPRYLYLAS-NHSNKWGHPRGYRIQMLSFAGEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9.0%; Score 368.5; DB 17; Lengt)
24.4%; Pred. No. 1.8e-21;
tive 103; Mismatches 303; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 413121DF91C74076 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                             -EVNLRGEPITEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
650
                                                                727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68
                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                614
                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28;
```

œ

```
RESULT OPERATION OF THE PROPERTY OF THE PROPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OSSTI2 PRELIMINARY; PRT; 756 AA.
OSSTI2;
O1-MAY-2000 (TrEMBLrel. 13, Created)
O1-MAY-2000 (TrEMBLrel. 13, Last sequence update)
O1-MAY-2000 (TrEMBLrel. 20, Last annotation update)
Copper amine oxidase-like protein.
T4C9.130 OR AT4G12290.
Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Andersson B., Wentland M.A., Ricairente "A 'double adaptor' method for improved construction.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF01179; Cu_amine_oxid; NON_TER 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Yu W, Glbbs R.A.;
Submitted (MAR-1998) to the EMBL/GenBank/DDBJ
EMBL; AF054985; AAC09346.1; -
InterPro; IPR000269; CuNH_oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Yu W., Andersson B., Worley K.C., Muzny D.M., Ding Y., Ricafrente J.Y., Wentland M.A., Lennon G., Glbbs R.A.; "Large-scale concatenation cDNA sequencing."; Genome Res. 7:353-358(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-97264341; PubMed-9110174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     [1]
SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Anal. Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-96207227; PubMed-8619474;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-BRAIN;
EU Arabidopsis sequencing pr
Submitted (MAR-2000) to the
                                                                                                                                                                                                                                                                                                                                         BEQUENCE FROM N.A.
Bevan M., Peters S.A., van Staveren M.,
Bandroft I., Mewes H.W., Mayer K.F.X.,
Schueller C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-BRAIN;
                                                                                                                          Peters S.A., van Staveren M.,
Lemcke K., Mayer K.F.X.;
                                                      SEQUENCE FROM N.A.
                                                                                                      Submitted
                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                               SEQUENCE FROM N.A.
EU Arabidopsis sequencing project;
Submitted (JUN-1999) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                        Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        700 GVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGG 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64
                                                                                                                                                                                                                                                                                                                (JUN-1999) to the EMBL/GenBank/DDBJ databases
                                                                                                 (MAR-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64 AA; 6892 MW; A7A0F2972EAF3210 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.7%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               236:107-113(1996).
                                                                                                 ç
                                                                                                 the
  project;
ne EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                 EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 358; DB 4;
Pred. No. 3.9e-22;
                                                                                                                                                Dirkse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                Σ.
                                                                                                                                                                                                                                                                                                                                                                     Lemcke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J.Y., Liu W., G
shotgun library
                                                                                                                                                                                                                                                                                                                                                                Dirkse W.,
Lemcke K., N
                                                                                                                                                Stiekema
  databases
                                                                                                 databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                           W., Mewes
                                                                                                                                                                                                                                                                                                                                                                  Mannhaupt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                           Stiekema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gibbs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R.A.;
                                                                                                                                                                                                                                                                                                                                                                  ΩΣ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
RESULT 14
Q9HBM7
ID Q9HBM
AC Q9HBM
DT 01-MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SQ DR DR DR DR DR
                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                           밁
                                                                                                                                      S
                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 163; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Interpro; IPR000269; CuNH_Oxidase.
Pfam; PF01179; Cu_amine_Oxid; 1.
Pfam; PF02727; Cu_amine_OxidN2; 1.
Pfam; PF02728; Cu_amine_OxidN3; 1.
Pfam; PF02728; Cu_amine_OxidN3; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_1; UNKNOWN_1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; AL080318; CAB45976.1;
EMBL; AL161533; CAB78272.1;
HSSP; Q43077; 1KSI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                448
                                                                                                           743
                                                                                                                                                                        889
                                                                                                                                                                                                     667
                                                                                                                                                                                                                                   630
                                                                                                                                                                                                                                                                  809
                                                                                                                                                                                                                                                                                              570
                                                                                                                                                                                                                                                                                                                             552
                                                                                                                                                                                                                                                                                                                                                          515
                                                                                                                                                                                                                                                                                                                                                                                       508
                                                                                                                                                                                                                                                                                                                                                                                                                       466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                        727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94 NCVFSVELQLPPKAAALAHLDRGSPPPAREALAI -------VFFGRQPQPNVSE 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LVVG-PLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC 199
                                                                                                                                                                                                                                                                                                                                                                          GNQV------SEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQN------QGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RIFDVR-----FQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTR 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPG------PAPPLQF-YPQGPRESVQGSRVAS-SLWTESFGLGAFSGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RVSGYPMMTIEEMNDITV-----VPFSNAD-----FNRTIIS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HALHTYVLEEPEK-NLYRHWEKGNPLPPRKASVIARVGADTHYLTYDISTGRYDSENSPV
                                                                                                                                      GDQDAGACEVNPLA 740
                                                                                                                                                                                         ETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFR
                                                                                                                                                                                                                                   RTTAASLLDHDDPPQKRGAFTNNQIWVTPYNKSEQWAGGLFTYQSHGDDTLAVWSD--RD
                                                                                                                                                                                                                                                                LSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD-FSDFINN
                                                                                                                                                                                                                                                                                              QETEPGESPRKSYLKAVRNIAKTEKDGQIKLSLYDPSEFHVINSGKTTRVGNPTGYKVVP
                                                                                                                                                                                                                                                                                                                        PWSPEHQLQR----LQVTRKLLEMEEQAAFLVGSATP-RYLYLASNHSNKWGHPRGYRIQM
                                                                                                                                                                                                                                                                                                                                                          KNQVEKDKDGNEEELHGTLLSENVIGVIHDHYVTFYLDLDVDGPDN-----SFVKVNLKR
                                                                                                                                                                                                                                                                                                                                                                                                                       ----PKVTLVVRMAASVGNYDYIIDYEFQTDGLIKAKVGLSGIL---MVKGTTYQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                  YSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LNDCPRNAAYMDGVFAAADGTPFVRENMVCIFESYAGDIGWRHSESPITGIPIREVR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VISRVRVHDPDTHETRDVMYKGFVSELFVPYMDPSDAWYFKTYMDAGEYGFGLQAMPLVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PGSTNTDYRFQKLATTDKTRPLNPISIEQPRGPSFVIEDNHLVKWANWEFHLKPDPRAGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPV 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FYKHRGRNLVTMTTAPRGLQSGDRATWFG-------LYYNISGAGFFLHHV-GLE
                                                                                                                                                                        RDIENKDIVVWYTLGFHHIPCQEDFPIMPTVSS--SFDLKPVNFFERNPILSAAPNF---
                                                                                                           -EHDLPVCGVQSVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RGVNLTDVICFP--ISCG----WFGNKEENARVIKSQCFMTQGTPNFYMRPIEGLT 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative 100;
                                                                                                           755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 357.5; DB 10;
Pred. No. 1.7e-20;
0; Mismatches 280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels 191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 756;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            216
                                                                                                                                                                                                                                                                                                                                                                                       551
                                                                                                                                                                                                                                                                                                                                                                                                                       514
                                                                                                                                                                                                                                                                                                                                                                                                                                                  507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184
                                                                                                                                                                                                     726
                                                                                                                                                                                                                                     687
                                                                                                                                                                                                                                                                  666
                                                                                                                                                                                                                                                                                              629
                                                                                                                                                                                                                                                                                                                             607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29;
```

Q9HBM7 PRELIMINARY; Q9HBM7; 01-mar-2001 (TrEMBLrel.

16,

Created)

PRELIMINARY;

PRT;

194 ζ

```
OC2339
ID O2334
AC O2334
AC O1-JP
DT O1-JP
DT O1-JP
DT O1-JP
DT COPPE
GN ATAGI
OCS PERTAI
OC SPETA
OC SPETA
OC SETA
OC SETA
OCH S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                             RX MEDLINE-98121113; PubMed-9461215;
RA Bevan M., Bancroft I., Bent E., Love K., Goodman H., Dean C.,
RA Beryamp R., Dirkse W., van Staveren M., Stiekema W., Drost L.,
RA Hilley P., Hudson S.A., Patel K., Murphy G., Piffanelli P., Wedler H.,
RA Ridley P., Hudson S.A., Patel K., Murphy G., Piffanelli P., Wedler H.,
RA Hiller E., Wambutt R., Weitzenegger T., Pohl T.M., Terryn N.,
RA Gielen J., Villarroel R., De Clerck R., van Montagu M., Lecharny A.,
RA Auborg S., Gy I., Kreis M., Lao N., Kavanagh T., Hempel S., Kotter P.,
REDITIAN K.D., Rieger M., Schaeffer M., Fink B., Mueller-Auer S.,
RA Silvey M., James R., Montfort A., Pons A., Puigdomenech P., Douka A.,
RA Voukelatou E., Milioni D., Hatzopoulos P., Piravandi E., Obermaier B.,
RA Hilbert H., Duesterhoft A., Moores T., Jones J.D.G., Eneva T.,
RA Allme K., Benes V., Rechman S., Ansorge W., Cooke R., Berger C.,
RA Delseny M., Voet M., Volckaert G., Mewes H.W., Klosterman S.,
RAT "Analysis of I.9 Mb of contiguous sequence from chromosome 4 of
RT Arabidopsis thaliana.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       O23349; PRELIMINARY; PRT; 650 AA.
023349; O1-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat.)
AT4G14940.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-MAR-2001 (TrEMBLrel. 16, La
01-MAR-2002 (TrEMBLrel. 20, La.
Hypothetical 23.0 kDa protein.
Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arabidopsis thaliana (Mouse-ear cress).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hypothetical SEQUENCE 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL, AF218035; AAG17277.1; -.
InterPro: Toboccompanation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gu J.R., Wan D.F., Zhao
Qin W.X., Huang Y., Qiu
Yu J., Han L.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
                                                    Arabidopsis thaliana.";
Nature 391:485-488(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Novel Human cDNA clones with function
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LQIHSMADQVLPPGWQEEQAITWARYPLAVTKYRESELCSSSIYHQNDPWHPPWSLSSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KLENITNPWSPRHRVVQPTLEQTQYSWERQAAFRFKRKLPKYLLFTSPQENPWGHKRSYR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEAKMHATGYVHATFYTPEGLRHGTRLHTHLIGNIHTHLVHYRVDLDVAGTKNSFQTLQM 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            194 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
Z.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23024 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X X . T . ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 357;
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zhou
Qian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5C488671AE16A149 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Y.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of inhibiting cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4;
.5e-21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Jiang H.Q.,
He L.P., Li
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8O;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zhang
H.N.,
                                                                                                                                                                                                                                                                                                              Lecharny A.,
S., Kotter P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P.P.,
Yu Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                           Wedler H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    663
                                                                                                                                                                                                                                                             Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
S
                                                               밁
                                                                                           õ
                                                                                                                               밁
                                                                                                                                                            δõ
                                                                                                                                                                                               밁
                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_1;
COPPER; Oxidoreductase; TPO.
SEQUENCE 650 AA; 73783 MW; 28741CEB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -: CÓFÁCTOR: COPPER AND TOPAQUINONE
-: SIMILARITY: BELONGS TO THE COPPER
EMBL; Z97337; CAB10273.1; -.
EMBL; AL161540; CAB78536.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EU Arabidopsis sequencing project;
Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
-i- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HSSP; Q43077;
InterPro; IPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
                                                                                                                                                                                                                                                                                                                                  353
                                                                                                                                                                                                                                                                                                                                                                                                    293
                                                                                                                                                                                                                                                                                                                                                                                                                                 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99 VELQLPPKAAALAHL----DRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRD 154
                             GFFLRPYNFFDEDP
                                                                                                                                                                                                                                                                                                                                                  AFCVFEQNQGLPLRRHHSDLY---SHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WYGE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LTTSKIASSRIYTGHGFPSFTFIELFKASKLPLTYPPFKKSILDRSLNISEVSCIPFTVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VTVER-----HGGP----LPYHRRPVLFQEYLDIDQMIFNREL--PQASGLLHHCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LDLEEPNKSHVLQWLSPNPSKKPPPPRRRSFVVVRAGGQ----TYELII---
GFTLRPSNFFDNDP
                                                               RWAGGF-YSDRSRGDDGLAVWSSRNREIENKDIVMWYNVGFHHIPYQEDFPVMPTLHG--
                                                                                             PWAPTVDFSD-----FINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGV
                                                                                                                               KIGNTVGYRL-----IPEHLQATSLLTDDDYPELRAGYT----KYPVWVTAYDRSE
                                                                                                                                                            KWGHPRGYRIQMLSFAGEPLP----QNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQND
                                                                                                                                                                                             NSLVKAKLKTVRVTEVNKTSSRRKSYWTVVKETAKTEADGRVRLGSDPVELLIVNPNKKT
                                                                                                                                                                                                                              NWVWAEDMVFVPMA-VPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSN
                                                                                                                                                                                                                                                                 IRVGVDLTGVLEVKATSYTSNDQI--TENVYGTLVAKNTIAVNHDHYLTYYLDLDVDGNG
                                                                                                                                                                                                                                                                                              IEI------RFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLE
                                                                                                                                                                                                                                                                                                                               VMCVFEKN-GYGASFRHTEINVPGQVITSGEAEISLVVRMVATLGNYDYIVDWEFKKNGA
                                                                                                                                                                                                                                                                                                                                                                                                FVPYMDPTYEWYYRTFMDIGEFGFGRSAVNLQPLIDCPQNAAFLDGHVAGPDGTAQKMTN
                                                                                                                                                                                                                                                                                                                                                                                                                             LAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                NVSDTGFKILGNRVKWANWKFHVGFTARAGVTISTASVLDPRTKRFR--RVMYRGHVSET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -PQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDV----RFQGERLVYEISLQEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -SMQVIKYSDRFRKP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHV-GLELLVNHKALDPAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR000269; CuNH_oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1KSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -TTTRRELKA-----SCFYRDGSVNVFTRPIEGITVTID---VD---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8.6%;
23.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 353.5; DB 1
Pred. No. 2.9e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28741CEB3A43FF5D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JINONE (BY SIMILARITY)
COPPER/TOPAQUINONE OX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches 278;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----IPDK-EGNDFRTKH-----RPFPFFC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .....D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                               576
                                                                                                                                                                                                 529
                                                                                                                                                                                                                                                                 469
                                                                                                                                                                                                                                                                                                536
                                                                                                                                                                                                                                                                                                                                                               484
                                                                                                                                                                                                                                                                                                                                                                                                352
                                                                                                                                                                                                                                                                                                                                                                                                                                 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 101
                                                                                              701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29;
```

Search completed: May 20, Job time: 56.6446 secs

2003,

11:37:44

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                 Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein - protein search, using sw model
                                                                                                                                                                                                                                                            ő
                                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being part and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB seq
                                                     3967
2480.5
1180
1175.5
1175.5
1171.5
1168
1167.5
           1166
1164.5
                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A_Geneseq_101002:*
1: /SIDS2/gcgdata/g
2: /SIDS2/gcgdata/g
3: /SIDS2/gcgdata/g
                                                                                                                                                                                                                                                          Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-081-408-20
5357
1 MDWLRNLLFLMAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                908470 segs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               May 20, 2003, 07:58:08; Search time 84.2615 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15:
16:
17:
18:
19:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      112:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MDWLRNLLFLMAAAQSINAA.....QAAACAPDLPAFSHGGFSHN 998
                                                                                                                                                                                                                                                                                                                                                                                                                                                     /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1991.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1992.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1992.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1994.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1995.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1090.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 5.1.5 (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                            BB
                                                                                                                                                                                                                                                            Ħ
         AAY03219
AAU184261
AAU10670
AAU10662
AAY21557
AAY47004
AAE02008
AAR79948
AAR79948
AAW10673
                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (without alignments)
1578.232 Million cell updates/sec
Amino acid sequenc
Human endometrial
Mouse LICAM Fn4-5
Chicken Ng-CAM F80
GS-GC6 fusion prot
Glutathione-S-tran
Yeast Cystathionin
G17 antigen. Chim
Human suppressor o
Chicken Nr-CAM Fn4
                                                                                                                                                                                                                                                        Description
                                                                                                                                                                                                                                                                                                                                                                                        printed,
```

T/GI transport		20	U.	<u>. </u>	15
EX-Sep45 p		23	14	7	55.
-SEP fusion pr		16	4		
ST/GI transpor		20	4		56.
ST/human p57 fus		17	7	۲.	15
rypanosoma cru		16	4	1.	15
panosoma	AAR84565	16	564	21.6	1157
lione		19	\mathbf{H}	۲	15
ST/GI tran	AAW74124	20	5	1.	15
tran		20	4	_	15
ă,		20	4	۲.	57.
Ng-0		23	5	1.	.7
acid s		20	\sim	1.	57.
trans		20	8	1.	57.
Ng-CAM		23	ω	۲.	15
nione-š-t	AAY31954	20	7	<u></u>	15
transport		20	8	۲.	15
prolactin/		16	Ν	۲	58.
transport		20	7	٢	59.
transport		20	7	۳.	9.
transport		20	7	Ϊ.	59.
transport	AAW74125	20	S	٢	59.
-BMS-L3a cy		23	9	۲.	60.
transport		20	7	Ľ	60.
transport		20	5	-	60.
use L1CAM		23	ω	۳.	16
mino acid seguen	AAW56327	19	7	_	16
ST:NANBV 690:691		13	9	۳.	16
-N fusion prot		13	\mathbf{L}	۲	16
urine GST-mODF	AAM49711	23	0		2
tathioneStrans		23	40		62.
fusion of amino		21	9	۲	16
nisin esteras	5.5	21	19	Ľ	16
uman L1CAM Fn4	듣	23	4	۳.	16
GST:NANBV 693:691		13	8	Η.	16

ALIGNMENTS

RESULT 1 AAY03219

AAY03219;

AAY03219 standard; Protein; 763

FIXOXXXX Misc-difference /note= Misc-difference 232 /note= Misc-difference 137 /note= "potential O-glycosylation site" Misc-difference 679 /note= "potential O-glycosylation site" Misc-difference 47Misc-difference Misc-difference 592 Homo sapiens Human; vascular adhesion protein-1; VAP-1; endothelial cell; lymphocyte; inhibition; amine oxidase. 21-JUN-1999 Misc-difference 294 Misc-difference Amino acid sequence of the vascular adhesion protein-1. (first entry) /note-/note= 618 Location/Qualifiers /note-"potential N-glycosylation site" "potential N-glycosylation site" "potential O-glycosylation site" "potential N-glycosylation site" "potential "potential N-glycosylatin site" N-glycosylation

```
δõ
                     밁
                                 δõ
                                                ₽
                                                             S
                                                                            Query Match 74.1%;
Best Local Similarity 99.9%;
Matches 735; Conservative
                                                                                                                                                                                            protein oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                         Peptide
                                                                                                                                                                                                                        N-PSDB;
                                                                                                                                                                                                                               WPI; 1999-131690/11.
                                                                                                                                                                                                                                                                       23-MAY-1997;
                                                                                                                                                                                                                                                                                     22-MAY-1998;
                                                                                                                                                                                                                                                                                                                 WO9853049-A1
                                                                                                                                                                                                                                                                                                                                      Domain
                                                                                                                                                                                                                                                                                                                                                    Peptide
                                                                                                                                                                                                                                                                                                                                                                   Peptide
                                                                                                                                                                                                                                                                                                                                                                                Peptide
                                                                                                                                                                                                                                                                                                                                                                                             Peptide
                                                                                                                                                                                                                                                                                                                                                                                                            Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                        Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Peptide
                                                                                                                                                                       Claim 1; Fig 1; 66pp; English.
                                                                                                                                                                                      endothelial
                                                                                                                                                                                                          Nucleic
                                                                                                                                                                                                                                                          (BIOT-)
                                                                                                                                                          This is
                                                                                                         Sequence
                                                                                                                     This is the nucleotide sequence encoding the human vascular adhesion protein-1 (VAP-1) used in the method of the invention. The method involves manipulating VAP-1 mediated binding of endothelial cells to lymphocytes which comprises inhibiting the enzymatic activity of amine oxidase in endothelial cells, and potentiating the enzymatic activity of activity of endothelial cells.
        383
                                  323
                                                              263
                     88
                                                 28
                    HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN
                                                                                                                                                                                          acid encoding a novel human endothelial cell adhesion designated VAP-1 - having an adhesive function and a function useful for manipulating VAP-1 mediated bindi
                                                                                                                                                                                                                                                          BIOTIE THERAPIES LTD
                                                                                                                                                                                                                                           Jalkanen S,
                                                                                                         763 AA;
                                                                                                                                                                                     cells to lymphocytes
                                                                                                                                                                                                                                                                       97US-0862433
                                                                                                                                                                                                                                                                                     98WO-FI00429
                                                                                                                                                                                                                                                                                                                                                                                                                          /note= "\
.368..375
                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "\
323..329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note= "
264..277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "1259..262
                                                                                                                                                                                                                                                                                                                                      /note= "N-terminal tryptic peptide"
5...27
                                                                                                                                                                                                                                                                                                                                                                                 /note=
597..6
                                                                                                                                                                                                                                                                                                                                                                                               /note=
562..5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note= "
170..174
                                                                                                                                                                                                                                                                                                                                                                                                             384..393
                                                                                                                                                                                                                                                                                                                                                                                                                                         359..361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "potential N-glycosylation
74..78
                                                                                                                                                                                                                                                                                                                                                          /note-
                                                                                                                                                                                                                                                                                                                                                                                                                    /note-
                                                                                                                                                                                                                                                                                                                                                                                                                                               /note=
                                                                                                                                                                                                                                                                                                                                                                          note-
                                                                                                                                                                                                                                                                                                                                                                                               ..566
                                                                                                                                                                                                                                                                                                                                                                                 . 601
                                                                                                                                                                                                                                            Salmi M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                             8V.
                                                                                                                                                                                                                                                                                                                                "transmembrane domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                               "V8 peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                       "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                         "V8 peptide'
                                                                                                                                                                                                                                                                                                                                                                                                      "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                   "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                           "V8 peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                                            peptide"
                                                                            ; Score 3967; Di
; Pred. No. 0;
1; Mismatches
                                                                                                                                                                                                                                             Smith DJ;
                                                                                           В
                                                                                          20;
                                                                             0
                                                                                         Length
                                                                              Indels
                                                                                                                                                                                            and an a
                                                                                           763;
                                                                                                                                                                                             an amine ding of
                                                                             0;
                                                                            Gaps
        442
                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
  Q
                                                                                                                                                                                                                                                          뭥
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                              Š
```

```
RESULT 2
AAU84261
WPI; 2002-179967/23
N-PSDB; ABK35481.
                                                                                                            31-JUL-2001; 2001WO-US24104
                                                                                                                                                                                       Homo
                                                                                                                                                                                                            Human; endometrial cancer; differential expression; DNA microarray; protein microarray.
                                                                                                                                                                                                                                                     Human endometrial cancer related protein, AOC2
                                                                                                                                                                                                                                                                              08-MAY-2002
                                                                                                                                                                                                                                                                                                       AAU84261;
                                                                                                                                                                                                                                                                                                                             AAU84261 standard; Protein; 729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    148
                                    Mutter GL
                                                                                                                                       07-FEB-2002
                                                                                                                                                                WO200209573-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          503
                                                            (BGHM ) BRIGHAM & WOMENS HOSPITAL INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   208
                                                                                                                                                                                                                                                                                                                                                                                           748
                                                                                                                                                                                                                                                                                                                                                                                                                  983
                                                                                                                                                                                                                                                                                                                                                                                                                                           889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                           CAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                            CAPDLPAFSHGGFSHN 998
                                                                                                                                                                                                                                                                                                                                                                                                                                         LLEMEEQAAFLYGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YSHYFGGLAETVLVVRSMSTLLNYDYVMDTVFHPSGAIEIRFYATGYISSAFLFGATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ERYQLAVTORKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                     2000US-221735P
                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       207
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                          밁
                                                                                                                                                                          Ş
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                              õ
                                                                     8
     뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to diagnosing endometrial cancer in a subject consuspected of having endometrial cancer comprising determining the expression of a set of nucleic acid molecules or expression products in an endometrial sample suspected of being cancerous, where the set of nucleic acid molecules comprises at least 2 nucleic acid molecules sequences as given in the specification. The nucleic acids are used as an array of at least 2 of the 50 nucleic acids bound to a solid substrate. Also included is a solid-phase protein microarray comprising at least 2 antibodies or its antigen binding fragments, that specifically bind at least 2 different polypeptides from the 50 fully defined sequences as given in the specification, fixed to a solid substrate. The methods and arrays are useful for the diagnosis of endometrial cancer, selecting and monitoring treatment regimes and identification of lead compounds useful for the treatment of endometrial cancer. The present sequence is one of 50 proteins differentially expressed between cancerous and non-cancerous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Diagnosing endometrial cancer comprises determining expression of nucleic acid molecules or expression products that are differentially
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 samples.
                                     866
                                                                      567
                                                                                                        806
                                                                                                                                          507
                                                                                                                                                                            746
                                                                                                                                                                                                             447
                                                                                                                                                                                                                                               889
                                                                                                                                                                                                                                                                                 387
                                                                                                                                                                                                                                                                                                                  628
                                                                                                                                                                                                                                                                                                                                                    327
                                                                                                                                                                                                                                                                                                                                                                                  568
                                                                                                                                                                                                                                                                                                                                                                                                                    267
                                                                                                                                                                                                                                                                                                                                                                                                                                                      808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVWRFLTQRLGPGLVDAAQARPS
VSEHTLGTVHTHSAHFKVDLDVAGLENMVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLE
                                                                                                                                                                                                                             GGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATG--KYGNQ
                                                                                                                                                                                                                                                                                                 ATPRGLRSRERTTWIGLYHNISGYGLFLHPYGLELLLDHRALDPAHWTYQQYFYLGHYYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGSSQPPHCPSVSHRAQPWPHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQAQPS
                                                                                                                                                                                                                                                                                                                                             SLWSFTFGHGVFSGLRIFDVRFQGERIAYEVSVQECVSIYGADSPKTMLTRYLDSSFGLG
                                                                                                                                                                                                                                                                                                                                                                  SLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMG
                                                                                                                                                                                                                                                                                                                                                                                                                  DLGQLEREFKSGRLEVVRVPLPPPNGASSLRSRNSPGPLPPLQFSPQGSQYSVQGNLVVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                  SLAQLEAGEEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RDVTVERHGGPLPYHRRPVLRAEFTQMWRHLKDVELPKAPIFLSST--FNYNGSTLAAVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNCIFSVELQLPPKAAALAHLDRGSPPPAREALAIVLFGGQPQPNVSELVVGPLPHPSYM
                                                                      KEDLTAFSLGSPLPRYLYLASNQTNAWGHQRG-----
                                                                                                      MEEQAAFLYGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERY
                                                                                                                                        VGERVLGTVHTHAFHFKLDLDVAGLKNWVVAEDVVFKPVAAPWNPEHWLQRPQLTRQVLG
                                                                                                                                                                                                            GGLASSALVVRSVSSVGNYDYIWDFVLYPNGALEGRVHATGYINTAFLKGGEEGLLFGNR
                                                                                                                                                                                                                                                                             RNSRGLVRGVDCPYQATMVDIHILVGKGAVQLLPGAVCVFEEAQGLPLRRHHNYLQNHFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Page 131-134; 233pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          normal and malignant endometrium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              46.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 2480.5; DB 23; Pred. No. 4.1e-223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  266
                                                                                                      865
                                                                                                                                          566
                                                                                                                                                                                                            506
                                                                                                                                                                                                                                                                               446
                                                                                                                                                                                                                                                                                                                                                 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88
   659
                                                                     599
                                                                                                                                                                                                                                                                                                                                                                                 627
                                                                                                                                                                                                                                                                                                                                                                                                                  326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            w
```

```
ARESULT 3
ANDIO 10
AN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                The present invention relates to polypeptides that promote neurite CC growth. The polypeptides contain fibronectin Type III repeats derived CC from a family of cell adhesion molecules (CAMS). The polypeptides of the CC invention include the F80, 3-5, and 4-5 regions of the CAM family CC members chicken Ng-CAM, chicken Nr-CAM, mouse LICAM and human LICAM. CC The polypeptides of the invention are useful for promoting neurite cutgrowth of neuronal cells in vitro e.g. in a cell culture system, or CC in vivo for treating disorders such as peripheral nerve damage CC associated with physical or surgical trauma, infarction, bacterial or viral infections, toxin exposure, degenerative disease, malignant CC disease that affects peripheral or central neurones, or in surgical or CC transplantation methods in which new neuronal cells from brain, spinal CC ord or dorsal root ganglia are introduced and require stimulation of CC neurite outgrowth from the implant and innervation into the recipient CC tissue, where the diseases include central nervous systems lesions, or insurgical parameters. Paramonse or allower and a light or response or called the paramons and a light or response or called the paramons.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Neurite outgrowth; fibronectin Type III repeat; cell adhesion molecule; Fn4-5; neurone; peripheral nerve damage; trauma; gliosis; infarction; degenerative disease; malignant disease; antibacterial; central nervous system lesion; virucide; antiparkinsonian; nootropic; neuroprotective; antiinflammatory; mouse; LICAM; mutant; mutein.
                                                                                                tissue, where the diseases include central nervous systems lesions, gliosis, Parkinson's disease, Alzheimer's disease, gliotic response or inflammation. The present sequence represents mouse LICAM Fn4-5 fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Polypeptide for promoting neurite out-growth useful for treating diseases such as inflammation, Parkinson's disease, trauma, comprises fibronectin type III repeats derived from a family of cell adhesion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-017011/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US6313265-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAU10670 standard; Protein; 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        molecules -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (SCRI ) SCRIPPS RES INST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ds snw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mouse LlCAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         986 DLPAFSHGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DLPPFSYHGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPNTVTLGNRVGFLLRPYNFFDEDPSIFSPGSYYFEKGQDAGLCSINPVACLPDLAACVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fig 25; 132pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ပ်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fn4-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cunningham BA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9505-0506296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95US-0506296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Crossin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the
```

Query Match Best Local Similarity

69 .7%;

Score 1180; DB 2 Pred. No. 2e-101;

23;

Length

Sequence

ž

Matches

251;

Conservative

9;

Mismatches

50;

Indels

```
RESULT 4
AAU10662
    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
The present invention relates to polypeptides that promote neurite growth. The polypeptides contain fibronectin Type III repeats derived from a family of cell adhesion molecules (CAMs). The polypeptides of invention include the F80, 3-5, and 4-5 regions of the CAM family members chicken Ng-CAM, chicken Nr-CAM, mouse LICAM and human LICAM. The polypeptides of the invention are useful for promoting neurite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Neurite outgrowth; fibronectin Type III repeat; cell adhesion molec F80; neurone; peripheral nerve damage; trauma; gliosis; infarction; degenerative disease; malignant disease; antibacterial; central nervous system lesion; virucide; antiparkinsonian; nootropineuroprotective; antiinflammatory; chicken; Ng-CAM; mutant; mutein.
                                                                                                                                              Polypeptide for promoting neurite out-growth useful for treating diseases such as inflammation, Parkinson's disease, trauma, compris fibronectin type III repeats derived from a family of cell adhesion molecules -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAU10662 standard;
                                                                                                                                                                                                                                                                                                                                                                           06-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                          US6313265-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chicken Ng-CAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAU10662;
                                                                                                            Example 2;
                                                                                                                                                                                                                     WPI; 2002-017011/02
                                                                                                                                                                                                                                                                                                               24-JUL-1995;
                                                                                                                                                                                                                                                                                                                                            24-JUL-1995;
                                                                                                                                                                                                                                                                                 (SCRI ) SCRIPPS RES INST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPA--REALAIVFFGRQPQPNVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QSDTSLLLHWQPPLSHNGVLTGYLLSYHPVEGESKEQLFFNLSDPELRT--HNLT-NLNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PSVSPSAQPWT-------HP--GQS--QLFADLSREELTAVMRFLTQRLGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSD----LVPRGSPGHPEALHLEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLP-HC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                                                                                                                                                                                                  ်
                                                                                                         Fig 17; 132pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                  Cunningham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----QYRFQLQ-----ATTQQGGPGQAIVREGGTMALFGKPDFGNIS 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F80
                                                                                                                                                                                                                                                                                                              9505-0506296
                                                                                                                                                                                                                                                                                                                                            95US-0506296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          fusion polypeptide.
                                                                                                                                                                                                                                                BA,
                                                                                                         English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      644
                                                                                                                                                                                                                                                  Crossin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nootropic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        50;
                                                                                                                                                                    comprises
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             molecule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      237
                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10;
```

```
AAY21557
ID XXX ACC XXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  outgrowth of neuronal cells in vitro e.g. in a cell culture system, or in vivo for treating disorders such as peripheral nerve damage associated with physical or surgical trauma, infarction, bacterial or viral infections, toxin exposure, degenerative disease, malignant disease that affects peripheral or central neurones, or in surgical or transplantation methods in which new neuronal cells from brain, spinal cord or dorsal root ganglia are introduced and require stimulation of neurite outgrowth from the implant and innervation into the recipient tissue, where the diseases include central nervous systems lesions, gliosis, Parkinson's disease, Alzheimer's disease, gliotic response or inflammation. The present sequence represents chicken Ng-CAM F80 fusion
                                                                                                                                                                             27-MAY-1999.
                                                                                                                                                                                                                                                                                         Homo
                                                                                                                                                                                                                                                                                                                                                                Cellular senescence;
                                                                                                                                                                                                                                                                                                                                                                                                                  GS-GC6 fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         03-AUG-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAY21557;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAY21557 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                   (GERO-) GERON CORP
                                                                       19-NOV-1997;
                                                                                                                                                                                                                                    WO9925878-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  polypeptide.
                                                                                                                            19-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                                                      sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VLRYQQVEPG-----SALPGGSVLRDPQCDLRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LVDAAQARPSDNCVFSVE--LQLPPKAAALAHLDRGSPPPAREALAIV---FFGR----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SVSP------SAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS---DLVPRGSAPPDPPQIPQSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLSKLPEMIKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEDPPPFPPVALTVGGDARGALLGGLRPW---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---- OPOPNVSELVVGPLPHPSYMRDVTVERHG
                                                                                                                                                                                                                                                                                                                                       human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----PSEPIAFETPEGVPGPPEELRVERLD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                       fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۶
ج
                                                                       97US-0974180
                                                                                                                              98WO-US24996
                                                                                                                                                                                                                                                                                                                                       protein
                                                                                                                                                                                                                                                                                                                                                                modulator;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1175.5; DB 2
Pred. No. 9.5e-101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                   929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                                                                                                                                                                                gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     396
                                                                                                                                                                                                                                                                                                                                                                   senescent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -DTALSVVERRTFKRSITGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SRYQL-RVLVFNGRGDGP-
                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                expression;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10;
```

```
Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              senescence. Recombinant expression vectors comprising a recombinant polynucleotide corresponding to a polynucleotide in a human GC6 gene, are useful for altering senescent gene expression. The vectors and host cells comprising the vectors are useful for identifying agents that prevent or producing the vectors are useful for identifying agents that prevent or producing the protein, pGC6 and nucleic acid derivatives. The proteins encoded are useful for raising antibodies specific for pGC6, which are useful for isolating pGC6, and for detecting cells comprising pGC6 in complex cell mixtures. The characterization of the polynucleotides enable the identification of therapeutto agents that identify and distinguish between young and senescent cells. This enables treatment of aging diseases induced or exacerbated by cellular senescence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention relates to methods for modulating and identifying cellular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Page 29-30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New human GC6 gene, useful for identifying agents for treating diseases and/or conditions associated with cell senescence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1999-347496/29.
N-PSDB; AAX77118.
  487
                                                  523
                                                                                                     431
                                                                                                                                                     474
                                                                                                                                                                                                        382
                                                                                                                                                                                                                                                        432
                                                                                                                                                                                                                                                                                                           334
                                                                                                                                                                                                                                                                                                                                                              375
                                                                                                                                                                                                                                                                                                                                                                                                                 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                           FLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDS-----LAQLEAQFEAGLVN
                                                                                                                                                                                                                                                                                                      DLVNQDVPIPN--KDTTYWCQMFKIP-----VFQEKHHVIKVEPVIQRGH----ESLVH
                                                                                                                                                                                                                                                                                                                                                   ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQE---YLDIDQMIFNRELPQASGLLH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YFTNANRELKKDAQQDYHLEYAMENSTHTIIEFTRELHTCDINDKSITDSTVRVIWAYHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP
                                                VVLIPDNGTGGSW-SLKSPVPPG 544
                                                                                                YPPHVGLSL---GTPLDP-HYVLLEVHYDNPTYEEGLIDNSGLRLFYTMDIRKYDAGVIE
                                                                                                                                                                                                                                                        HCCFYKHRGRNLVTMTTAPRGLQSGDRA-----
                                                                                                                                                                                                                                                                                                                                                                                                         EDAGEAGPKYHDSNRGTKSLRLLNPEKTSVL------STALPYF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                            -DAAQARP----SDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSD----LIEG--RGIPRNSARED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
---- AGLWVSLFHTIPPG 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           536 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                   -CSNNFNDSVLESGHECYHPNMPDAFLTCETVIFAW-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1175; DB 20;
Pred. No. 7.9e-101;
1; Mismatches 123;
                                                                                                                                                                                                                                                   -TWFGLYYNISGAGF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels 120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 536;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                486
                                                                                                                                                                                                   430
                                                                                                                                                                                                                                                                                                      381
                                                                                                                                                                                                                                                                                                                                                      431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                                                                                                                                                                                                                                                                                                                                                                                           333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19;
```

```
06-MAY-1997;
09-MAY-1997;
14-AUG-1997;
14-AUG-1997;
                                                                                                                                                                                                                   Andrews WI
Morin GB,
                                                                                                                                                                         Pure and recombinant human Telomerase Reverse Transcriptase and variants - are useful in the diagnosis, prognosis and treatment cell proliferation conditions especially cancer and ageing
                                                                                                                                                                                                                                                                                                    14-AUG-1997;
01-OCT-1996;
                                                                                                                                                                                                                                                                                                                                                                                         xey
                                                                                                                                                                                                                                                                                                                                                                                                                         prognosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Human;
                                                                                                                                                                                                      WPI; 1998-171633/16.
                                                                                                                                                                                                                                       (GERO-)
                                                                                                                                                                                                                                                                                     18-APR-1997;
25-APR-1997;
                                                                                                                                                                                                                                                                                                                        01-OCT-1997;
                                                                                                                                                                                                                                                                                                                                    08-APR-1998
                                                                                                                                                                                                                                                                                                                                                  GB2317891-A
                                                                                                                                                                                                                                                                                                                                                                     Region
                                                                                                                                                                                                                                                                                                                                                                                                            Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW47004 standard; Protein; 514 AA
                                                                                                                                                                                                                                                                                                                                                                                                                         telomerase reverse transcriptase; sis; cell proliferation; cancer; ac
                                                                                                                                                                                                                                       GERON
UNIV.1
                                                                                                                                                                                                                          HW,
                                                                                                                                                                                                                   Nakamura T,
                                                                                                                                                                                                                          Cech TR,
                                                                                                                                                                                                                                       N CORP.
                                                                                                                                                                                                                                                          97US-0854050.
97US-0911312.
97US-0912951.
                                                                                                                                                                                                                                                                                     97US-0844419.
97US-0846017.
                                                                                                                                                                                                                                                                                97US-0851843
                                                                                                                                                                                                                                                                                                   96US-0724643
                                                                                                                                                                                                                                                                                                         97US-0915503
                                                                                                                                                                                                                                                                                                                       97GB-0020890
                                                                                                                                                                                                                                                                                                                                                                    /note= "glutathione-S-transferase fragment"
237..514
                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                  Chapman
Harley
                                                                                                                                                                                                                                       CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                             and hTRT fusion protein 4.
                                                                                                                                                                                                                                                                                                                                                              protein
                                                                                                                                                                                                                   G KB
                                                                                                                                                                                                                          Harley
                                                                                                                                                                                                                                                                                                                                                              fragment"
                                                                                                                                                                                                                                                                                                                                                                                                                        a; hTRT; TRT; diagnosis; ageing; ribonucleoprotein.
                                                                                                                                                                                                                          ú
```

Example 6;

387pp;

The present sequence represents a fusion protein from an example CC of the present invention which describes human telomerase reverse transcriptase (hTRT). The present invention also describes the CC transcriptase (hTRT). The present invention also describes the CC a modulator of hTRT, by determining whether a test compound is CC a modulator of hTRT, by detecting the change in hTRT recombinant CC protein or polynucleotide, on administration of the compound: (C) the preparation of recombinant telomerase by contacting a protein CC preparation of hTRT with a telomerase RNA component; (C) detection CC preparation of hTRT with a telomerase RNA component; (C) detection CC probe to the sample and detecting the complex formed or in the case of CC RNA detection, amplifying the product and correlating the presence of CC complex or amplification product with presence of hTRT in the sample: and (D) increasing the proliferation of a vertebrate cell by increasing CC hTRT expression; and (E) the use of an agent that causes an increase in CC cell vertebrate cell proliferation to create a medicament that inhibits ageing. A protein preparation of hTRT and the polynucleotide encoding the effect of ageing a cartifity can be used in the manufacture of medicaments for inhibiting the effect of ageing or cancer. Inhibitors of telomerase activity can used to treat conditions that are associated with high telomerase activity. A protein preparation of hTRT can also be used in the no

RESULT 6

밁 ρ B Ş 밁 Š 밁 Ş 밁 Ş 밁 S 밁 δõ 밁 δÃ В Š

Length 514;

```
RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                             02-NOV-1999;
10-MAY-2000;
01-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAE02008 standard; Protein; 1252
                                                                                                                                                                                                                                                                                                                                                          Yeast; enzymatic cycling assay; cystathionine beta-synthase; cystathionine beta-lyase; CBL; cyclical interconversion;
                                                                        02-NOV-2000; 2000WO-US30518
                                                                                                10-MAY-2001.
                                                                                                                      WO200133187-A2
                                                                                                                                                      Region
                                                                                                                                                                             Misc-difference
                                                                                                                                                                                                  Misc-difference
                                                                                                                                                                                                                         Misc-difference
                                                                                                                                                                                                                                                         Region
                                                                                                                                                                                                                                                                                          Region
                                                                                                                                                                                                                                                                                                                          Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                          Yeast cystathionine beta-synthase (CBS).
                                                                                                                                                                                                                                                                                                                                                                                                                 31-JUL-2001
     (CATC-) CATCH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQ------SQE 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRP--S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLLSSLRPSLTGA 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FLTORLGPGLVDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALFQGGDGGEPS--QLPHC--PSVSPSAQPWTHP-----GQSQLFADLSREELTAVMR 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGSRRASVGSVTKATSLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLSKLPEMIKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                              2000US-0203349
2000US-0704036
                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                    99US-0163126
                                                                                                                                                    /note= "Encoded by ACC" 746..1252
                                                                                                                                                                              531
                                                                                                                                                                                                  460
                                                                                                                                                                                                                       /note= "Yeast cystathionine beta-synthase"
459
                                                                                                                                                                                                                                                       /label- Glutathione_S-transferase /note- "GST fused to the amino-terminal of 239..745
                                                                                                                                                                                                                                                                                         Location/Qualifiers
1..238
                                                                                                                                                                                      /note= "Encoded
                                                                                                                                                                                                            'note- "Encoded by GAG"
                                                                                                                                                                                                                                              /label-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.9%;
75.4%;
                                                                                                                                           "Repeated CBS region"
                                                                                                                                                                                                                                            CBS_enzyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1171.5; DB 19; Pred. No. 1.6e-100;
                                                                                                                                                                                     уď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                      GGA"
                                                                                                                                                                                                                                                                   CBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
```

```
RESULT 8
AAR79948
 밁
                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 234; Conserv
Chimeric
Chimeric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present invention relates to an enzymatic cycling assays using cystathionine beta-synthase (CBS) and cystathionine beta-lyase (CBL) to assess the amount of homocysteine and/or cystathionine in a sample by assaying the amount of pyruvate, ammonia, and/or nicotinamide adenine dinucleotide (NAD+) produced during the cyclical interconversion of homocysteine and cystathionine. The homocysteine reacts with L-serine to form cystathionine in the presence of the enzyme CBS. The CBL catalyse the conversion of cystathionine to homocysteine, pyruvate and ammonia. The enzymatic cycling assay is less expensive and provides a higher sample throughput than the diagnostic assays currently available. The present sequence is yeast CBS having an amino terminal GST fusion protein attached as a result of cloning into the bacterial
                                           Syphilis; G15 antigen; membrane antigen; glutathione-S-transferase; GST; fusion protein; membrane antigen; diagnosis.
                                                                                          G17 antigen
                                                                                                                                                       AAR79948;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            expression vector pGEX6P-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 103; Page 75-79; 80pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Enzyme assays comprising using amounts of e.g. pyruvate and ammonia produced during cyclical interconversion of homocysteine and cystathionine to assess amounts of homocysteine and/or cystathionine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2001-335847/35
N-PSDB; AAD06034.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kawasaki G,
Lawson S;
                                                                                                                        26-FEB-1996
                                                                                                                                                                                    AAR79948 standard;
                                                                                                                                                                                                                                                                                            318
                                                                                                                                                                                                                                                                                                                                                           273
                                                                                                                                                                                                                                                                                                                                                                                        182
                                                                                                                                                                                                                                                                                                                                                                                                                                                     122
                                                                                                                                                                                                                                                                 298 MVEEAEA
                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                       218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                            LVDAAQA
                                                                                                                                                                                                                                                                                                                           KSEQQADSRHNVIDLVGNTPLIALKKLPKALGIKPQIYAKL---ELYNPGGSIKDRIAKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                  DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                        RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS-DLEVLFQGPLGSPGIPGSTMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                       RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQG--GDGGEPSQ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
Treponema pallidum; unidentified bacteri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1252 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                 304
                                                                                                                                                                                                                                                                                              324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Webb
                                                                                                                        (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HK,
                                                                                                                                                                                     Protein;
                                                                                                                                                                                                                                                                                                                                                        -LPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPG
                                                                                                                        entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21.8%; Score 1168; 176.2%; Pred. No. 1.44 tive 12; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Owens J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Liedtke R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 22;
..4e-99;
les 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Forest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Legaz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                         317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97
                                                                                                                                                                                                                                                                                                                                                                                                                     272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ij
```

4;

```
RESULT 9
AAY96056
ID AAY9
XX
AC AAY9
XX
DT 05-D
XX
                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                          Ωy
                                                                                                                        QΥ
                                                                                                                                               ₽
                                                                                                                                                                                        밁
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                       밁
                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 245
                                                                                                                                                                                                                                                                                                                                                                                                                                G17 antigen (AAR79948) is a fusion protein composed of glutathione-
s-transferase and the 17 kDa membrane antigen of Treponema
pallidum. It is obtd. by insertion of a DNA fragment coding for
the 17 kDa antigen into vector pWG6A and expression in E. coli.
G17 and similarly produced G15 (AAR79947) are used for diagnosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (FJRE )
(FJRE )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Page 10-11; 18pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New assay for anti-Treponema diagnosis of syphilis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1995-303656/40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fujii N, Fujimura K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-FEB-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP670494-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Key
                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                           of syphilis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Protein
         05-DEC-2000
                                                  AAY96056 standard;
                              AAY96056;
                                                                                                       279
                                                                                                                                                                    278
                                                                                                                                                                                         182
                                                                                                                                                                                                             218
                                                                                                                                                                                                                                  122
                                                                                                                                                                                                                                                       158
                                                                                                                                                                                                                                                                            62
                                                                                                                                                                                                                                                                                                                                         38
                                                                                                                                                                                                                                                                                                                                                              Local Similarity
les 245; Conserv
                                                                                                                                                                                                                                                                                                98
                                                                                                                                                                                                                                                                                                                    N
                                                                                                                         VFSVELQLPPKAAALAHLDRGSPPPAREA---LAIVFFGRQPQPNVSEL
                                                                                                                                                                                                   RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP
                                                                                                                                                                                                                                                                         SVSPSAQPWTHPGQSQ-----LFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNC
                                                                                                                                                                                       RIEAIPQIDKYLKSSKYIAWPLOGWQATFGGGDHPPKSD----LVPRG-----SELVSCT
                                                                                                                                                                                                                                 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                                                                                             FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                     AQKVELALEKKSAPSPLTYRGTWMVREDGIVELSLVSSEQSKAPHEKEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FUJI REBIO INC
                                                                                                                                                                                                                                                                                                                                                                                                       362
                                                                                                                                                                                                                                                                                                                                                              Conservative
         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                       A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94JP-0054672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
1..228
/label= GST
229..362
                                                                                                                                               HAGKAKAEKVECALKGGIFRGTLPAAD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95EP-0400423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /label- 17k_antigen
                                                  Protein;
                                                                                                                                                                                                                                                                                                                                                            21.8%; Score 1167.5; DB 16; Length 70.2%; Pred. No. 2.1e-100; tive 15; Mismatches 56; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Okada
                                                  658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pallidum antibody - useful
                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ueno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ħ
                                                                                                                                               -CPG-IDTTVTFNADGT
                                                                                                                          376
                                                                                                                                                                                                                                                                                                                                                                                  362;
                                                                                                                                                                                                                                                                                                                                                              33;
                                                                                                                                                                                        232
                                                                                                                                                                                                             277
                                                                                                                                                                                                                                 181
                                                                                                                                               278
                                                                                                                                                                   330
                                                                                                                                                                                                                                                                                                                                                             7;
```

```
ρ
 В
                                                          밁
                                                                                   δÃ
                                                                                                                    밁
                                                                                                                                             δÃ
                                                                                                                                                                             밁
                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chimeric Chimeric
                                                                                                                                                                                                                                                                                                                                       The present sequence is that of a fusion between glutathione s-transferase (GST) and human suppressor of fused (hSu(fu), see also AAY96054), a protein that functions as a negative regulator of the hedgehog segment polarity pathway. hSu(fu) is highly expressed in regions of active cell proliferation, and is probably a tumour suppressor protein. hSu(fu) was expressed as a GST fusion protein using vector pGEX in transformed bacterial cells, and used to study the protein-protein interations of hSu(fu). The invention provides hSu(fu) nucleic acids (see AAA50501), proteins, host cells, vectors, antibodes, agonists and antagonists, as well as a method of determining which are allocated in the sectors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Suppressor of fused; hSu(fu); PRO1280; human; signal transduction; cancer; tumour suppresso
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human suppressor of fused, hSu(fu),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New human suppressor of fused proteins and nucleic acids encoding the useful {\rm e.g.} as hybridization probes, in chromosome and gene mapping, the generation of antisense RNA and DNA -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          05-MAR-1999;
25-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02-MAR-2000; 2000WO-US05746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200052166-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein
                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2000-565502/52.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             De Sauvage FJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Protein
                                                                                                                                                                                                                                                                                                                               determining whether a disorder is modulated by hedgehog signalling.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 6; Fig 11; 67pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GETH ) GENENTECH INC
                                                          122
                                                                                        158
                                                                                                                     62
                                                                                                                                                98
                                                                                                                                                                                                           38
                                                                                                                                                                                                                                        Local Sines 225;
                                                                                                                                                                             N
                  RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP
                                                                        FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                     DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                  DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                           SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS----DLVPRGSAELRPSGAPG-P
                                                          FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                             SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                   658 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S-transferase; GST.
                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0123090
99US-0135736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gurney AL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /label= GST
227..658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /label= hSu(fu)
                                                                                                                                                                                                                                                   21.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Murone M,
                                                                                                                                                                                                                                     Score 1166; DB 21;
Pred. No. 7.7e-100;
5; Mismatches 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80; human; hedgehog;
suppressor; therapy; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rosenthal A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fusion
                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Stone
                                                                                                                                                                                                                                                                     658;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DM;
                                                                                                                                                                                                                                        4.
                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      them
                                                                                                                                                                                61
                                                                                                                                                                                                            97
                                277
                                                            181
```

2;

Š

278

SVSPSAQPWTHPGQSQLF

밁

238 TAPPAPGPTAPPAFASLF

```
RESULT 10
AAU10673
ID AAU10673
AC AAU10
AC AAU10
AC AAU10
AC AAU10
AC AAU10
AC Chich
             Ş
                                                                          ₽
                                                                                                                                  á
                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 236; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gallus sp. Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                   disease that affects peripheral or central neurones, or in surgical or transplantation methods in which new neuronal cells from brain, spinal cord or dorsal root ganglia are introduced and require stimulation of neurite outgrowth from the implant and innervation into the recipient tissue, where the diseases include central nervous systems lesions, gliosis, Parkinson's disease, Alzheimer's disease, gliotic response or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present invention relates to polypeptides that promote neurite growth. The polypeptides contain fibronectin Type III repeats derived from a family of cell adhesion molecules (CAMs). The polypeptides of the invention include the F80, 3-5, and 4-5 regions of the CAM family members chicken Ng-CAM, chicken Nr-CAM, mouse LICAM and human LICAM. The polypeptides of the invention are useful for promoting neurite outgrowth of neuronal cells in viro e.g. in a cell culture system, or in vivo for treating disorders such as peripheral nerve damage associated with physical or surgical trauma, infarction, bacterial or viral infertions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Polypeptide for promoting neurite out-growth useful for treating diseases such as inflammation, Parkinson's disease, trauma, compris fibronectin type III repeats derived from a family of cell adhesion molecules -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fn4-5; neurone; peripheral nerve damage; trauma; gliosis; infarction; degenerative disease; malignant disease; antibacterial; central nervous system lesion; virucide; antiparkinsonian; nootropic; neuroprotective; antiinflammatory; chicken; Nr-CAM; mutant; mutein.
                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      viral infections,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 5; Fig 28; 132pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2002-017011/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Phillips G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (SCRI ) SCRIPPS RES INST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          06-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US6313265-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Neurite outgrowth; fibronectin Type III repeat; cell adhesion molecule;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chicken Nr-CAM Fn4-5 fusion polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14-FEB-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAU10673;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAU10673 standard;
                                                                                                                                                                                                                                                                                                                                                                                                            inflammation. The present sequence represents chicken Nr-CAM Fn4-5
                98
                                                                                                                                  38
                                                                          N
                                                                                                 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                       SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                           443 AA;
                                                                                                                                                                                            21.7%;
ilarity 74.4%;
Conservative 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cunningham BA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9505-0506296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95US-0506296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            toxin exposure, degenerative disease, malignant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein;
                                                                                                                                                                                         11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          443
                                                                                                                                                                                      Score 1164.5; DB 23
Pred. No. 5.6e-100;
Pred. Mismatches 31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Crossin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                23;
                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                   Length 443;
                                                                                                                                                                                         39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          comprises
                                                                                                                                                                                  Gaps
                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                            fusion
                                                                                                                                                                                         7;
```

```
RESULT 11
AAR22141
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                               Deoxyribonucleic acid sequence encoding non-A, non-B hepatitis virus - obtd. Hutch C59 subgroup encoding polypeptide(s), usef
                        as vaccines, and immuno reactive
                                                                                                   (NYBL-)
      Disclosure; Page 83; 225pp; English
                                                                   WPI;
                                                                                                                             21-NOV-1990;
25-AUG-1990;
                                                                                                                                                                        05-MAR-1992.
                                                                                                                                                                                                                                                                                                                                Chimeric:
                                                                                                                                                                                                                                                                                                                                        Chimeric:
                                                                                                                                                                                                                                                                                                                                                        Hepatitis C virus; non-A non-B virus; glutathione-S-transferase; GST:NANBV (
                                                                                                                                                                                                                                                                                                                                                                                 GST:NANBV 693:691 encoded by pGEX-3X-693:691.
                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR22141 standard; Protein;
                                                                                   Zebedee S,
                                                                                                                                                       23-AUG-1991;
                                                                                                                                                                                         WO9203458-A.
                                                                                                                                                                                                                  Region
                                                                                                                                                                                                                                           Peptide
                                                                                                                                                                                                                                                            Region
                                                                                                                                                                                                                                                                                      Region
                                                                                                                                                                                                                                                                                                               Key
                                                                                                                                                                                                                                                                                                                                                                                                   07-JUL-1992
                                                                                                                                                                                                                                                                                                                                                                                                                    AAR22141;
                                                                                                                                                                                                                                                                                                       Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                 1992-096821/12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----LVEIRIPANESSL 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCVFSVELQLPPKAAAL 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PSVSPSAQPW---THPGQSQLFADLSREELTA-VMRFL----TQRLGPGLVDAAQARPSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSD----LVPRGSPSPPSFLKITN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PTLDSLTLEWGSPTHP-----NGVLTSYILKFQPINNTHELGP---
                                                                                                   NEW YORK B
                                                          AAQ22852.
                                                                                                                                                                                                                                                                                                                                       HCV-Hc59.
                                                                                                                                                                                                                                                                                                                              Schistosoma japonicum
                                                                                   Inchauspe G,
                                                                                                   YORK BLOO DCENT
                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                            90US-0616369.
90US-0573643.
                                                                                                                                                      91WO-US06037
                                                                                                                                                                                                                 /label- NANBV_capsid_antigen
/note- "amino acids 69-120"
283...285
                                                                                                                                                                                                        /label= linker
                                                                                                                                                                                                                                                                   /label- protease_Factor_Xa_cleavage_site
/note- intermediate polypeptide portion
                                                                                                                                                                                                                                                                                      222..225
                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                              /label= glutathione-S-transferase
                                                                                                                                                                                                                                                    'label= linker
                                                                                   Nasofe MS,
                                                                                                    ENG INC
                                                                                                                                                                                                                                                                                                                                                                                                                                   285
                       encoding
Abs for d
                                                                                                                                                                                                                                                                                                                                                         693:691.
                                                                                   Prince
                        diagnosis of virus
                                                                                   ¥
                                                                                                                                                                                                                                                                   portion"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              275
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    is given.
The GST-derived protein domain allows rapid islation using affin chromatography to a solid phase contg. glutathlone affixed to it The Factor Xa specific cleavage site is provided when a subject fusion protein is produced in the vector pGEX-3X. The cleavage site is included to allow prodm. of an NANBV structural protein free of the GST function domain.
Polypeptide for promoting neurite out-growth useful for treating diseases such as inflammation, Parkinson's disease, trauma, compilibronectin type III repeats derived from a family of cell adhes
                                                                                                                                                                                                                                                              Neurite outgrowth; fibronectin Type III repeat; cell adhesion molecule; fn4-5; neurone; peripheral nerve damage; trauma; gliosis; infarction; degenerative disease; malignant disease; antibacterial; central nervous system lesion; virucide; antiparkinsonian; nootropic; neuroprotective; antiinflammatory; human; LlCAM; mutant; mutein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       According to the text of the specification, the C-terminal linker comprises 5 residues, however, only the sequence Asn Ser Ser END
                                                                                                                                                                             06-NOV-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                  AAU10667 standard; Protein; 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                    24-JUL-1995;
                                                                                                                                                                                                    US6313265-B1
                                                                                                                                                                                                                                                                                                                                       Human L1CAM Fn4-5 fusion polypeptide
                                                                                                                             24-JUL-1995;
                                                                                                                                                                                                                                          Homo sapiens
                                                                                                   (SCRI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SRRPEGRTWAQPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SVSPSAQPWTHPG 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                     2002-017011/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              224;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                    SCRIPPS RES
                                                                            ر.
د
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              285 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                           Cunningham BA,
                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                             95US-0506296
                                                                                                                                                    9508-0506296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 1164; DB 13;
Pred. No. 3e-100;
3; Mismatches 14;
                                                                            Crossin
                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 285;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12;
  adhesion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                affinity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     to it.
              comprises
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
```

```
AAYSBJAT 13
AAYSBJ7
ID AAYSB
XX AAYSB
AC AAYSB
AC AAYSB
AC AAYSB
AC AAYSB
AC AAYSB
XX 23 MA
CT 23 MA
XX AMING
KW trans
KW trans
KW trans
XX AMING
KW trans
CKW Gluta
XX Chime
OS Chime
OS Chime
XX Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention relates to polypeptides that promote neurite growth. The polypeptides contain fibronectin Type III repeats derived from a family of cell adhesion molecules (CAMS). The polypeptides of the invention include the F80, 3-5, and 4-5 regions of the CAM family commembers chicken Ng-CAM, chicken Ng-CAM, mouse L1CAM and human L1CAM. The polypeptides of the invention are useful for promoting neurite coutgrowth of neuronal cells in vitro e.g. in a cell culture system, or in vivo for treating disorders such as peripheral nerve damage cassociated with physical or surgical trauma, infarction, bacterial or crital infections, toxin exposure, degenerative disease, malignant courses that affects peripheral or central neurones, or in surgical or transplantation methods in which new neuronal cells from brain, spinal cord or dorsal root gangila are introduced and regulare stimulation of neurite outgrowth from the implant and innervation into the recipient coutsies, where the disease include central nervous systems lesions, and infarction response or the first part of the process of the camerical course of the cameri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                Amino polyol amine oxidase; APAO; fumonisin estransgenic plant; detoxification; animal feed; glutathione S transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 3; Fig 22; 132pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    molecules
                                                                                                                                                                                                                                                 Fumonisin esterase-amino polyol amine oxidase fusion.
                                                                                                                                                                                                                                                                                                23-MAY-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                    AAY58917 standard; Protein; 1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                inflammation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity hes 236; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ຸ້
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QSNTSLLLRWQPPLSHNGVLTGYVLSYHPLDEGGKGQLSFNLRDPELRTHNLTDLSPHLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLP-HC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YRFQLQATTKEGPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F----LTQRLGPG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PSVSPSAQPWT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSD----LVPRGSPGHPEALHLEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          442 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present sequence represents human L1CAM Fn4-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1164; DB 23; Pred. No. 6.2e-100; 7; Mismatches 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -HP----GQSQLFADLSREE-----LTAVMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                      fumonisin esterase; mycotoxin;
                                                                                                                                                                            silage;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 442;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             276
```

Chimeric - Chimeric -

Exophiala Bacterium

spinifera

Location/Qualifiers

Schistosoma japonicum

```
8
 Š
                                                           Ş
                                                                                          ₽
                                                                                                                     Ş
                                                                                                                                                         밁
                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                            The present sequence is that of a fusion protein composed of Schistosoma japonicum glutathione S transferase, and a bacterial fumonisin esterase (BEST1) joined via a peptide linker to K:trAPAO (see AAY58909), a truncated, but functional, amino polyol amine oxidase of E. spinifera. The construct was designed for expression in Escherichia coli of a hybrid protein having BEST1 and APAO cativity. The invention provides APAO polynucleotides (see AAX58333-87) and polypeptides (see AAY59900-05) of E. spinifera and ARA58333-87) and polypeptides (see AAY5900-05) of E. spinifera and Exhinocladiella atrovirens. The polynucleotides are used to transform plant cells normally susceptible to Fusarium or other toxin-producing fungus infection. Also provided are methods for expressing APAO, optionally as a fusion protein with fumosinin esterase, in transgenic plants, prokaryotic and non-plant enkaryotic systems.) Methods for detoxification of grain, grain processing APAO (spinionally as a fusion protein with fumosinin esterase, in transgenic plants, prokaryotic and non-plant enkaryotic systems.) Methods for detoxification of grain, grain
                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New isolated polynucleotides, polypeptides useful for detecting and degrading fumonisin or structurally related mycotoxin in processed
                                                                                                                                                                                                                                                                                                                                                                          microorganisms are also disclosed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Duvick JP, Gilliam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (PION-) PIONEER HI-BRED INT INC (CURA-) CURAGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-JUL-1998;
21-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200004159-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Peptide
   265
                                 182
                                                                                             122
                                                                                                                                                         62
                                                                                                                                                                                      86
                                                                                                                                                                                                                                  38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                               Local Similarity
es 325; Conserv
                                                                                                                                                                                                                     N
                         RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS----DLVPRGSPEFTDFPVRRTD
                                                                                                       FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDEMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                   DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                          RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQG-----
                                                                                       DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                              SPILGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000-182425/16
DB; AAZ58406.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        in silage
GDGGEPSQLPHCPSVSP----
                                                                                                                                                                                                                                                                                                                                            1196 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Page 129-131; 154pp; English.
                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98US-0092936
99US-0135391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note= "g
230..1196
/note= "f
734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99WO-US15454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "extra lysine"
721..733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             · Or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŢŢ,
                                                                                                                                                                                                                                                                                                                                                                                          food crops and in animal feed and
                                                                                                                                                                                                                                                                                              21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . "glutathione S transferase + polylinker"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "fumosin esterase-K:trAPAO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "peptide linker"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Maddox JR;
                                                                                                                                                                                                                                                                             55;
                                                                                                                                                                                                                                                                                              Score 1163;
Pred. No. 3.
                                                                                                                                                                                                                                                                               Mismatches
-----SAQPWTHPGQSQLFADLSREELTAVMR 308
                                                                                                                                                                                                                                                                                            DB 21;
3.9e-99;
                                                                                                                                                                                                                                                                               188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fusion"
                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                           Length 1196;
                                                                                                                                                                                                                                                                            268;
                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                 157
                                                                                                                                                    121
                                                                                                                                                                                                                  61
                                                          264
                                                                                                                                                                                                                                                97
                                                                                                                                                                                                                                                                            31;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                              AAY68853
                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                              Key
                                                                                                                                                                                                                                                                   Aminopolyol amine oxidase; APAO; mycotoxin degradation; antimicrobial; plant fungal invasion; hydrogen peroxide; Fusarium; fungi;
                                                                                                                                                                                                                                                                                                         A fusion of
          08-JUL-1999;
                                                                                                          Protein
                                                                                                                                 Peptide
                                                                                                                                                          Protein
                                                                                                                                                                                 Protein
                                                                                                                                                                                                                                  Synthetic
                                                                                                                                                                                                                                                         fumonisin
                                                                                                                                                                                                                                                                                                                                 16-MAY-2000
                                                                                                                                                                                                                                                                                                                                                           AAY68853;
                                  27-JAN-2000.
                                                           WO200004160-A1
                                                                                                                                                                                                                     Exophiala
                                                                                                                                                                                                                                                                                                                                                                                  AAY68853 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              375
                                                                                                                                                                                                                                                                                                                                                                                                                                             667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                                                                             AWVRFAK----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGK 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQ-GL-----PLRRHHSDLYSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACYPLDGRATPKEMVARIFGDNQFNRGVSAFSEALVRQGAPVWRYQFNGNTEGGRAPATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QTDSAAIAAGQLAPV--RVLIGTNADEG-RAFLGRAPMETPADYQAYLEAQFGDQAAAVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV-YEISLQ-----EALAIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PLATLADSAASGERLDADLSRLRSTDPATLMARADAARPASRDLRRPRPTGPIVDGHVLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -LAQLEAQFEAG-------LVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GD--RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TAAMPYYD--GEALARQGVVVVTF-----NYRTNILGFFAHPG--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -AALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPY 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PATQ-FGSDCFGAAYLRKGSLAPGVSEDCLY-LNVWAPSGAKPGQYPVMVWVYGGGFAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FLTQRLGPGLVDAAQARP-----SDNCVFSVELQLPPKA----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LGQVQGLAGDVMSFRGIPYAAPPVGGLRWKPPQHARPW------AGVR
                                                                                                                                                                                                                     spinifera
                                                                                                                                                                                                                                                          esterase
                                                                                                                                                                                                                                                                                                         aminopolyol amine oxidase/fumonisin esterase
                                                                                                                                                                                                                                                                                                                                 (first entry)
          99WO-US15455
                                                                                                                                230..721
/note= "bacterial fumonisin
                                                                                                          7340..1196
                                                                                                                      /note=
                                                                                                                                                                      /note=
                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -LSRESPIGIS----
                                                                                                                                                                                                                                                                                                                                                                                                                                            ---NGDPAGDALTWPA-----YSTG--KSTMTFGPEGR
                                                                                                                                                                   "GST and a linker"
                                                                                 "aminopolyol amine oxidase with an amin
terminal Lys for optimized expression"
                                                                                                                   "spacer sequence"
                                                                                                                                                                                                                                                                                                                                                                                  1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -FGVFKLDELGLFDWPPEGPTPADRALGQLMSS
                                                                                                                                                                                                                                                                                                                                                                                  ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GNYGLLDILAALRWVQSNARAFG
                                                                                                                                             esterase'
                                                                                            amino
                                                                                                                                                                                                                                                                                                                                                                                                                                            701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           407
```

```
S
                                                                                                                                                                                              8
                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                            Ş
                                                                밁
                                                                                           õ
                                                                                                                                밁
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             spinifera aminopolyol amine oxidase (APAO)/fumonisin esterase.

The APAO enzyme has homlology to the flavin containing amine oxidase family, that oxidise primary amine to an aldehyde or ketone, releasing ammonia and hydrogen peroxide. The APAO enzyme degrades mycotoxins that promote fungal invasion of plants. Destruction of mycotoxins by. APAO generates, as a by-product, hydrogen peroxide which is itself an antimicrobial and stimulates the plants own defensive systems. The APAO polynucleotides are used to generate plants (particularly maize) that are resistant to Fusarium or other fungi that produce mycotoxins and/or to degrade such mycotoxins (e.g. during ensilaging); for recombinant production of APAO polypeptides; as selection markers for plant transformation; and to isolate related sequences from other lands in productions. The APAO polypeptides are used to degrade mycotoxins in plant materials, including expression in engineered bacteria and fungi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Crasta OR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present sequence represents a fusion protein of GST/Exophiala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 13; Page 124-126; 145pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New nucleic acid encoding generate plants resistant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2000-182426/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (PION-) PIONEER HI-BRED INT (CURA-) CURAGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-JUL-1998;
                                                                                                 402
                                                                                                                                                                                                281
                                                                                                                                                                                                                              309
                                                                                                                                                                                                                                                                239
                                                                                                                                                                                                                                                                                              265
                                                                                                                                                                                                                                                                                                                              182
                                                                                                                                                                                                                                                                                                                                                              218
                                                                                                                                                                                                                                                                                                                                                                                           122
 408
                                                                                                                                                                                                                                                                                                                                                                                                                             158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
nes 325; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N
                                                                                                                                                                                                                                                                                                                                                                                                                                                         DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                               RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQG-------------
                                                                                                                                                                                                                                                                                                                                                                                                          FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                     GD--RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDS-----
                                                                                                HRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQS-----
                                                                                                                                                                                              PATQ-FGSDCFGAAYLRKGSLAPGVSEDCLY-LNVWAPSGAKPGQYPVMVWVYGGGFAGG
                                                                                                                                                                                                                              FLTQRLGPGLVDAAQARP-----SDNCVFSVELQLPPKA---------
                                                                                                                                                                                                                                                                                              ----GDGGEPSQLPHCPSVSP------SAQPWTHPGQSQLFADLSREELTAVMR 308
                                                                                                                                                                                                                                                                                                                              RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS----DLVPRGSPEFTDFPVRRTD
                                                                                                                                                                                                                                                                                                                                                                                           FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                TAAMPYYD--GEALARQGVVVVTF-----NYRTNILGFFAHPG----------
                                                                                                                                                              - AALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPY
                                                                                                                                                                                                                                                              LGQVQGLAGDVMSFRGIPYAAPPVGGLRWKPPQHARPW-------AGVR 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1196 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      microflora.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Duvick J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98US-0092936
                                                                 ----LSRESPTGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Folkerts 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aminopolyol amine to Fusarium -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1163; Di
Pred. No. 3.9e
55; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INC
                                                                -----GNYGLLDILAALRWVQSNARAFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gilliam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 21;
3.9e-99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              oxidase,
PLSKGLFRGAILESPGLTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Maddox JR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              used,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        268;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              б
                                                                                                                                                                401
                                                                                                                                                                                                                                                                                                                              238
                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97
                                                                                                455
                                                                                                                                374
                                                                                                                                                                                                                              342
                                                                                                                                                                                                                                                                                                                                                             264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31;
```

Ş 문 ő

98

DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD SPILGYWKIKGLVQPTRLLLEYLEEKYEBHLYERDEGDKWRNKKFELGLEFPNLPYYIDG SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG

N

38

Conservative

7;

Gaps

2

61 97

```
RESULT 15
AAO17115
ID AAO17
XX AO17
XX AO17
XX CAO17
DT 11-JU
XX MOUSE
KW OSTEC
XX Chime
OS Chime
OS Chime
OS Chime
YX JP200
XX JP200
XX JP201
XX I9-JU
XX I9-JU
XX ISAN
XX Cath
PT Ca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
Query Match
Best Local s
Matches 226
                                                                                                                                                                                 The present invention provides the murine cathepsin K promoter. The sequence can be used in the identification of treatments and preventive agents for bone metabolic diseases such as osteoporosis. The present sequence is a fusion protein of the murine osteoclast differentiation factor and a glutathione-S-transferase described in the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chimeric - Mus sp.
Chimeric - Unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mouse; cathepsin K promoter; bone metabolic disease; osteoporosis; osteoclast differentiation factor; glutathlone-S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlutathioneStransferase/osteoclast differentiation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-JUN-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAO17115 standard; Protein; 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cathepsin K promoter useful for detecting a preventative treating bone metabolic diseases e.g., osteoporosis -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2002-275721/32.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-JUL-2000; 2000JP-0218497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19-JUL-2000; 2000JP-0218497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               05-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JP2002034563-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA017115;
                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                          Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (SANY ) SANKYO CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            667 AWVRFAK----
Local Similarity es 226; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQ-GL------PLRRHHSDLYSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGK 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAEIPYV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACYPLDGRATPKEMVARIFGDNOFNRGVSAFSEALVRQGAPVWRYQFNGNTEGGRAPATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLATLADSAASGERLDADLSRLRSTDPATLMARADAARPASRDLRRPRPTGPIVDGHVLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QTDSAAIAAGQLAPV--RVLIGTNADEG-RAFLGRAPMETPADYQAYLEAQFGDQAAAVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV-YEISLQ-----EALAIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -LAQLEAQFEAG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GGNSPAAMTTR-YVDGGFGMG------
                                                                                                                               409
                                                                                                                                                                                                                                                                                                                                                                                          Page 14-15; 16pp; Japanese
                                                                                                                               A
                              21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -NGDPAGDALTWPA-----YSTG--KSTMTFGPEGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----FGVFKLDELGLFDWPPEGPTPADRALGQLMSS
Score 1162.5; DB 2
Pred. No. 7.5e-100;
1; Mismatches 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --LVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----KY------TTPLTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   factor fusion
                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agent
                                                                  409;
                                                                                                                                                                                                                                                                                         preventive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           553
```

•	Search completed: May 20, 2003, 11:34:02 Job time : 90.2615 secs	
	Db 242 SWLDVAQRGKPEAQPFAH 259	
	Qy 271 SQLPHCPSVSPSAQPWTH 288	
241	Db 182 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLIEGRGIPGQRFSGAPAMMEG 241	
270	Qy 218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDG-GEP 270	
181	Db 122 FLSKLPEMLKMFEDRICHKTYLNGDHVTHPDFMLYDALDVYLYMDPMCLDAFPKLVCFKK 181	
217	QY 158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK	
121	Db 62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121	

5.1.5

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum
Maximum
                                                                                                                                                                                                                                                                                   Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein - protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                   Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
      Pred. No. score grea and is der
     1180
1175
1171.5
1161.5
1164.5
1164.5
1163.1
1163.1
1163.1
1163.1
1162.1
1162.1
1163.1
1163.1
1164.5
1157.5
1157.5
1157.5
1157.5
1157.5
1157.5
1157.5
1157.5
1157.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB DB
                                                                                                                                                                                                                                                                                   Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq
                                                                                                                                                                                                                                                                                                                                 No. is the number of results predicted by chance to have a greater than or equal to the score of the result being printed, s derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                       Issued_Patents_AA:*
1: /cgn2_6/ptodata/2,
2: /cgn2_6/ptodata/2,
3: /cgn2_6/ptodata/2,
4: /cgn2_6/ptodata/2,
5: /cgn2_6/ptodata/2,
6: /cgn2_6/ptodata/2,
                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-081-408-20
5357
1 MDWLRNLLFLMAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BLOSUM62
Gapop 10.0 , Gapext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    May 20, 2003, 11:30:54; Search time 32.1643 Seconds
     22.0
21.9
21.9
21.9
21.8
21.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MDWLRNLLFLMAAAQSINAA.....QAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Copyright
                                                                                                                                                                                                                                                                                                                                                                     /cgn2_6/ptodata/2/1aa/5A_COMB.pep:*
/cgn2_6/ptodata/2/1aa/5B_COMB.pep:*
/cgn2_6/ptodata/2/1aa/6A_COMB.pep:*
/cgn2_6/ptodata/2/1aa/6B_COMB.pep:*
/cgn2_6/ptodata/2/1aa/B_COMB.pep:*
/cgn2_6/ptodata/2/1aa/PCTUS_COMB.pep:*
                                                                                                                                                                                                                                                                                 Length
     GenCore
(c) 1993
                                                                                                                                                                                                                                                                                   BB
  0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      version - 2003
                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (without alignments)
912.939 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         262574
Sequence 73, Appl
Sequence 605, Appl
Sequence 20, Appl
Sequence 20, Appl
Sequence 605, App
Sequence 76, Appl
Sequence 77, Appl
Sequence 31, Appl
Sequence 31, Appl
Sequence 11, Appl
Sequence 11, Appl
Sequence 11, Appl
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 4, Appli
Sequence 6, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 8, Appli
                                                                                                                                                                                                                                                                               Description
```

5 21.6 307 2 5 21.6 307 2 4 21.5 282 4 4 21.5 282 4 4 21.5 600 4 5 21.5 610 3 5 21.5 610 3 5 21.5 616 3 5 21.5 829 4 1 21.5 1205 4																		
21.6 307 2 US 21.6 307 4 US 21.5 282 4 US 21.5 616 3 US 21.5 616 3 US 21.5 829 4 US 21.5 1205 4 US 21.5 US 2	45	44	3	2	41	40	39	38	37	36	S	4	ü	32	31	30	29	č
307 4 US 55 282 4 US 56 616 3 US 616 3 US 617 4 US 618 282 4 US 618 2 4	1149	1150	1150	1150.5	1151	1151	1151.5	1151.5	1152	1152.5	1152.5	1153	1154	1154	1154.5	1155	1155	++00.0
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	21.4	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.6	21.6	21.6	
2 US-08-216-894-6 4 US-09-115-746-6 5 PCT-US95-04439-1 4 US-08-910-820-5 4 US-08-910-820-5 4 US-08-910-820-5 4 US-09-327-984A-6 3 US-08-895-707-2 4 US-09-352-159-33 4 US-09-352-159-33 4 US-09-352-159-29 4 US-09-352-159-29 4 US-09-352-168-3 6 US-09-352-168-3 7 US-08-974-549A-602 7 US-08-974-549A-602 7 US-08-9115-746-10 7 US-08-115-746-10	542	472	472	538	1205	1205	829	829	632	616	600	412	282	282	435	307	307	
US-08-216-894-6 PCT-US95-04439-1 US-08-910-820-3 US-08-910-820-5 US-08-910-820-5 US-08-910-820-7 US-08-910-820-3 US-09-327-984A-6 US-09-352-158-33 US-09-352-158-33 US-09-352-158-33 US-09-352-158-39 US-08-974-549A-602 US-08-974-549A-602 US-08-915-746-10 US-08-915-746-10	4	4	N	4	4	4	4	4	4	w	4	4	4	4	σ	4	N	•
	US-08-506-296B-69	US-09-115-746-10	US-08-216-894-10	US-08-974-549A-602	US-09-352-168-29	US-09-352-159-29	US-09-352-168-33	US-09-352-159-33	US-08-506-296B-74	US-08-895-707-2	US-09-327-984A-6	US-09-366-009-34	US-08-910-820-5	US-08-910-820-3	PCT-US95-04439-1	US-09-115-746-6	US-08-216-894-6	***
	69,	10,	10,	602,	29,	29,	ű,	ű,	74,	, ≽	6, A	34,	5, A	ω Α	A	۰` ۵	۰ ۲	:
· · · N · · · · · · ·	Ap	App	Αpp	Ą	App	App	App	App.	App	Įď	pp1	App	1qq	1dd	1dd	Ígq	Appl:	4

ALIGNMENTS

OF. SD RESULT 1 US-08-506-296B-73

	61		NLPYY	FELGLEFP	GDKWRNK	SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG	CLEEK	TRLLLE	WKIKGLVQI	SPILGY		문 5
	97	3	NI DVV	abi U. abo	- DKEIDNE	ABBEI VEBDE	77 555	7 T T T T T T T T T T T T T T T T T T T	WE TECT VOI	CDITCY	ມ	2
٠,	Gaps 10;	ဂ္ဂ	50;	Indels 5	5e-107; s 50;	Pred. No. 3.5e-107; ; Mismatches 50;	φ	69.7%; tive	ilarity 69. Conservative	251;	Best Local Similarity Matches 251; Conser	
			47.	Length 4	DB 4.			22 0 *		2	Operv Ma	
								101		-506-296B-73	80	ús-
								procern		MODECOLE IIVE:	FRACE	
								; ;	브	TOPOLOGY:	10T	
									2	E: am	TYE	٠.
								acids	447 amino	LENGTH: 447	LEN	٠.
							ì		SEQUENCE CHARACTERISTICS:	ENCE CH	SEQUE	٠
							73.	04-6512	11 033 a0	TON F	(619) :XEASTEL	
							37	554-293	TELEPHONE: (619) 554-2937	EPHONE	TEI	٠.
							ON:	VFORMAT I	ELECOMMUNICATION INFORMATION:	INDEMO	TELEC	٠.
						488.0	TSRI	UMBER:	REFERENCE/DOCKET NUMBER:	ERENCE	REF	٠.
							163	R: 34	REGISTRATION NUMBER: 34,163	ISTRAT	REC	٠
								omas	Fitting, Thomas	NAME: Fi	NAN	
								MATION:	ATTORNEY /AGENT INFORMATION:	NEY/AG	ATTOF	
							Ū	114 114-1995	CLASSIFICATION: S14	LING DA	01.5	
						5,296B	905/8	?: US/(APPLICATION NUMBER: US/08/506,296B	LICATI	APF	٠.
								DATA:	CURRENT APPLICATION DATA:	ENT APP	CURRE	٠.
					on #1.25	PatentIn Release #1.0, Version	1Se #]	in Relea	Patent	SOFTWARE:	SOF	
						SOS	-SWS	PC-DOS/MS-DOS	ດ	RATING	OPE	
							<u>b</u>	THM PC Compatible	t	COMPUTER	900	
							•	loppy disk	MEDIUM TYPE: Floopy disk	MEDIUM TYPE: F	NET COMP	
								ĺ	3737711	9203/	:412	
									U.S.	COUNTRY:	000	٠.
				•				-	California		STA	٠.
						•			La Jolla	Υ: La	CITY:	٠.
				TPC-8	es Road,	Torrey Pines	55th 1	631326	STREET: 10550 No. 6313265th Tori	EET:	STR	
					Ť	ch Institu	PSPAT	ripps F	The St	RESSEE	ADE	
								. SS:	CORRESPONDENCE ADDRESS:	SPONDE	CORRESI	
Ç	WEIHOUS		ATS A	TIL KEPEATS AND	TALL NI	F T BRONECT.	NTNG		TNAENT TON:	OF TA	TITE	
)			IDES	POLYPEPTIDES	DMOTING	NEURITE OUTGROWTH-PROMOTING	E OUT	NEURIT	INVENTION:	9 9	TITLE	٠.
							'n Ľ	Kathry	Crossin, Kathryn	CANT	APPLI	٠.
							ice A.	າam, Bru	Cunningham, Bruce	APPLICANT:	APPLI	٠.
						•		, Greg	Phillips,	APPLICANT:	APPLI	٠.
									MATION:	INFOR	GENERAL INFORMATION:	
						t	000);; (O) (O)	3265	o 631	Patent No. 6313265	
						ב ב ב	50800	00/2II 0	Application HS/085062968	73 4	. Segmence 73, An	٠ د

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-506-296B-65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                    δõ
밁
                                                                                                                                                        ; MOLECULE TYPE: protein ; FRAGMENT TYPE: C-terminal US-08-506-2968-65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patent No. 6313265
                                                                                             Query Match
Best Local Similarity
                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                           TELEFAX: (619) 554-6312
INFORMATION FOR SEQ ID NO: (
                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: Fitting, Thomas
REGISTRATION NUMBER: 34,163
REFERENCE/DOCKET NUMBER: TSRI
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION 10FORMATION:
TELECOMMUNICATION 10FORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC COMPUTED
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
ADDRESSEE: The Scripps Research Institute
STREET: 10550 No. 6313265th Torrey Pines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: Patentin Release #1.0, Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Crossin, Kathryn L.
TITLE OF INVENTION: NEURITE OUTGROWTH-PROMOTING POLYPEPTIDES
TITLE OF INVENTION: CONTAINING FIBRONECTIN TYPE III REPEATS AND METHODS OF USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Cunningham, Bruce A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           295 DL------QYRFQLQ-----ATTQQGGPGQAIVREGGTMALFGKPDFGNIS 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             277
                                                               Local 250;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 10550 N
CITY: La Jolla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86
                                                                                                                                                                                                               LENGTH: 644 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/08/506,296B FILING DATE: 24-JUL-1995 CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                      38
    N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSD----LVPRGSPGHPEALHLEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLP-HC 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPA--REALAIVFFGRQPQPNVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QSDTSLLLHWQPPLSHNGVLTGYLLSYHPVEGESKEQLFFNLSDPELRT - - HNLT - NLNP 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PSVSPSAQPWT------HP--GQS--QLFADLSREELTAVMRFLTQRLGP 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                  SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
  SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application US/08506296B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       U.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Phillips, Greg
                                                                             Conservative
                                                                         21.9%; Score 1175.5; DB 4; 63.5%; Pred. No. 1.8e-106; 63.5%; Pred. No. 1.8e-52;
                                                                                                                                                                                                                                                                                                 65:
                                                                                                                                                                                                                                                                                                                                                                            TSRI 488.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Road, TPC-8
                                                                             Indels
                                                                                                                  Length 644;
                                                                             73;
                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  237
                                                                             10;
```

```
US-08-974-180-20

; Sequence 20, Application US/08974180

; Patent No. 6025194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
밁
                             20
                                                                                                                              ; MOLECULE TYPE: US-08-974-180-20
                                                               Matches
                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Funk,
                                                                                                                                                                                                                               TELEFAX: (650) 473-86
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Funk, Walter
TITLE OF INVENTION: Methods for Modulating and Identifying
TITLE OF INVENTION: Cellular Senescence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES: 3
                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION: TELEPHONE: (650) 473-7779
                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 536 amino acids
                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             330 VLRYQQVEPG-----SALPGGSVLRDPQCDLRG 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          368 -----QPQPNVSELVVGPLPHPSYMRDVTVERHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           318 LYDAAQARPSDNCVFSVE--LQLPPKAAALAHLDRGSPPPAREALAIV---FFGR----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: 230 Constitution Drive CITY: Menlo Park STATE: California
                                                                                                                                                             TYPE: amino acid TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/974,180 FILING DATE: 19-NOV-1997 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                             OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER:
                              38
                                                                                                                                                                                                                                                             TELEPHONE:
                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                              NAME: Kaster, Kevin R. REGISTRATION NUMBER: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SVSP-----SAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS----DLVPRGSAPPDPPQIPQSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
             SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AEDPPPFPPVALTVGGDARGALLGGLRPW------
SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   94025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                IBM PC compatible SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -PSEPIAFETPEGVPGPPEELRVERLD-----
                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Geron Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Floppy disk
                                                                                                                                               protein
                                                                                                                                                                                                                                               473-8654
                                                                              21.9%;
                                                                                                                                                                                                                                                                                                            32,704
                                                                                                                                                                                                                                 20:
                                                               Score 1175; DB 3;
Pred. No. 1.5e-106;
41; Mismatches 123;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -DTALSVVERRTFKRSITGY 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -SRYQL-RVLVFNGRGDGP-
                                                                                              Length 536;
                                                                Indels 120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             284
                                                                  19
```

```
FILING DATA:
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
APPLICATION O1-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBLE OF STATE OF ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Andrews, William H.
TITLE OF INVENTION: Human Telomerase Catalytic Subunit
NUMBER OF SEQUENCES: 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   523 VVLIPDNGTGGSW-SLKSPVPPG 544
                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DLVNQDVPIPN--KDTTYWCQMFKIP----VFQEKHHVIKVEPVIQRGH----ESLVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQE---YLDIDQMIFNRELPQASGLLH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLV---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YPPHYGLSL---GTPLDP-HYVLLEVHYDNPTYEEGLIDNSGLRLFYTMDIRKYDAGVIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FLHHYGLELLVNHKALDPARWTIQKVFYQGRYYDS-----LAQLEAQFEAGLVN 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HILLYQ------CSNNFNDSVLESGHECYHPNMPDAFLTCETVIFAW-----AIGGEGFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HCCFYKHRGRNLYTMTTAPRGLQSGDRA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EDAGEAGPKYHDSNRGTKSLRLLNPEKTSVL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSD----LIEG--RGIPRNSARED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -DAAQARP----SDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YFTNANRELKKDAQQDYHLEYAMENSTHTIIEFTRELHTCDINDKSITDSTVRVIWAYHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               605, Application US/08974549A
5. 6166178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AGLWVSLFHTIPPG 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Morin, Gregg B.
Harley, Calvin B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lingner, Joachim
Nakamura, Toru
MBER: US 08/844,419
18-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ), Toru
, Karen B.
                                                                                                                                                                                                                      US/08/974,549A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----STALPYF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----TWFGLYYNISGAGF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  157
                                                                            Ş
                                                                                                                                       밁
                                                                                                                                                                                      ρ
                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-974-549A-605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: (4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 01-OCT-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                       182
                                                                                                                                                                    218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQ-----
                                                                                                                                                                                                                                                 122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hes 236;
                       242 GALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRP--S
                                                                            260 ALFQGGDGGEPS--QLPHC--PSVSPSAQPWTHP-----GQSQLFADLSREELTAVMR
                                                                                                                                                                                                                                                                              158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: WO POFILING DATE: 01-OCT-1997
                                                                                                                                                                                                                                                                                                                                                              62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                     98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER: 36, REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: Protein LOCATION: 1..515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENGTH:
                                                                                                                                    RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGSRRASVGSVTKATSLE
                                                                                                                                                                                                                                                                                                                                                                                                                  DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Apple,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     514 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (415) 576-03
OR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (415)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              UMBER: US 08/912,951
14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JMBER: US 08/854,050
09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JMBER: US 08/851,843
06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JMBER: US 08/915,503
14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Randolph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     576-0300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  576-0200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence for heart muscle protein kinase, residues introduced by cloning and hTRT protein fragment"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note= "fusion protein composed of glutathione-S-transferase sequence, thrombin cleavage sequence, recognition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO PCT/US97/17885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO PCT/US97/17618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 08/846,017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US 08/911,312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            36,429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          015389-002610US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1171.5; DE Pred. No. 3e-106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 514;
                                                                                                                                                                                            ----SQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                               308
                                                                                                                                                                                                                                                                                                            217
                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                     157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97
                       299
                                                                                                                                    241
                                                                                                                                                                                            259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
```

g

US-08-974-549A-605 Sequence Patent No.

GENERAL INFORMATION:

APPLICANT:

Cech, Thomas R.

APPLICANT: APPLICANT: APPLICANT:

Chapman,

PRIOR APPLICATION DATA:
APPLICATION NUMBER:

SOFTWARE: PatentIn Rel CURRENT APPLICATION DATA: APPLICATION NUMBER: US

COMPUTER READABLE FORM:

94111-3834

COUNTRY:

USA

STREET: Two Emacisco
CITY: San Francisco

5

STATE: California

밁

431 474 382 432 334 375 296 320 236 278 182 218 122 158

B Š 밁 Ş В Ş 밁 밁 Š 밁 Ş B

FLTQRLGPGLVDA 321

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                 ₽
밁
                             Q
                                                              밁
                                                                                              Š
                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 2,
                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08-395-507-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: (202) 293-62 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tent No.
                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: protein HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 362 amind acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 28-FEB-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP Hei-6-54672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                     ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300 FLLSSLRPSLTGA 312
                                                                                                                                                                                                                                                                                                                                   FEATURE:
122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                             158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS

**T----** Polonge #1,0
                                                                62
                                                                                                 98
                                                                                                                                                                38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                  NAME/KEY: Protein LOCATION: 1.362 OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/01 FILING DATE: 27-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                  Local Similarity 70.2 es 245; Conservative
                                                                                                                                 2 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                                                                                                                                                                                                                                                                                                                                                      POPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LE OF INVENTION:
                                                                                DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                  : 362 amind acids amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Amernick,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/08395507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E: Pollock, Vande Sande & Priddy
1990 M Street, NW, Suite 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Okada, Masahisa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ueno, Eiichi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fuj11, No. 5578456uyuki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PatentIn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fujimura, Katsuya ·
                                                                                                                                                                                                                                                                                                                                                     NO
                                                                                                                                                                                                                                                                                                                                                                                                      not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (202)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         293-6229
                                                                                                                                                                                                                21.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Burton A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         331-7111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Anti-treponema Pallidum Antibody
                                                                                                                                                                                                                                                                                    /note= "G17 Antigen"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            us/08/395,507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24,852
R: 1581/007
                                                                                                                                                                                                   15;
                                                                                                                                                                                                Score 1167.5; DB 1
Pred. No. 4.1e-106;
5; Mismatches 56;
                                                                                                                                                                                                                                 DB 1; Length 362;
                                                                                                                                                                                                   Indels
                                                                                                                                                                                                  33;
                                                                                                                                                                                                Gaps
                                                                                                                                                                                                  7;
```

```
ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 6
US-08-974-549A-606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/846,017
PRILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE
FILING DATE: 01-OCT-PRIOR APPLICATION DATA: APPLICATION NUMBER:
                                                                     PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                   PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     182 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSD----LVPRG-----SELVSCT 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     331 VFSVELQLPPKAAALAHLDRGSPPPAREA---LAIVFFGRQPQPNVSEL 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                278 SVSPSAQPWTHPGQSQ------LFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNC 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  279 AQKVELALEKKSAPSPLTYRGTWMVREDGIVELSLVSSEQSKAPHEKEL 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1: CLASSIFICATION:
                                                                                                                                              FILING DATE:
                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                       APPLICATION NUMBER:
                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 0 FILING DATE: 18-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            606,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       T: Harley, Calvin B.
T: Andrews, William H.
INVENTION: Human Telomerase Catalytic Subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application US/08974549A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nakamura, Toru
Nakamura, Toru
Naman, Karen B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Morin, Gregg B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cech, Thomas R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lingner, Joachim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Townsend and Townsend and Crew LLP o Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --HAGKAKAEKVECALKGGIFRGTLPAAD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESS
                                                                                                                                                                                                    IUMBER: US 08/911,312
14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ольек: US/08/974,549A
19-NOV-1997
                                                                                                                                              14-AUG-1997
                                  01-OCT-1997
                                                                                                                                                                                                                                                          09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                           US 08/844,419
                                                     WO PCT/US97/17618
                                                                                                                                                               US 08/912,951
                                                                                                                                                                                                                                                                           US 08/854,050
WO PCT/US97/17885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Version #1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -CPG-IDTTVTFNADGT 278
```

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                    US-08-506-296B-76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-974-549A-606
                                                                                                                                                                                                                                                          Sequence 76, Application US/08506296B Patent No. 6313265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO:
                                                                                            NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
                                                                                                                                  APPLICANT: Cunningham, Bruce A.
APPLICANT: Crossin, Kathryn I.
TITLE OF INVENTION: NEURITE OUTGROWTH-PROMOTING POLYPEDTIDES
TITLE OF INVENTION: CONTAINING FIBRONECTIN TYPE III REPEATS AND METHODS OF USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION: 1.517
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 517 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002610US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415)_576-0200
                                                                                                                                                                                                             APPLICANT: Phillips, Greg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE: protein
            STREET: 100.
STREET: 100.
CTTY: La Jolla
Californ
                                                                                                                                                                                                                                                                                                                                                                               302 APSFROVSCLKELVARVLORLCERGAKNVLAFGFALLDGARGGPPE-ATTSVRSYLP 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                             242 RCRAVRSLLSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPWDARPPA 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: amino acid
STRANDEDNESS:
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity 66.9 es 239; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
              STATE: California
COUNTRY:
                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                     SQLFADLS--REELTAVMRFLTQR-----LGPGLVDAAQARPSDNCVFSVELQLP 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------SVSPSAQ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGSRRASVGSVTKMPRAP 241
                                                    E: The Scripps Research Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Randolph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     glutathione-S-transferase sequence, thrombin cleavage sequence, recognitio sequence for heart muscle protein kinase, residues introduced by cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and hTRT protein fragment"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "fusion protein composed of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          606:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; Score 1165; DB 4;
; Pred. No. 1.3e-105;
14; Mismatches 48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 517;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               recognition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----PW-THPGQ 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
```

```
US-08-506-296B-70
Sequence 70, Application US/08506296B
Patent No. 6313265
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-506-296B-76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: (619) 554-6312
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 443 amino acids
TYPE: amino acid
                                                                                                            APPLICANT: Philips, APPLICANT: Cunningham, Bruce A.
APPLICANT: Cunningham, Bruce A.
APPLICANT: Crossin, Kathryn L.
TITLE OF INVENTION: NEURITE OUTGROWTH-PROMOTING
TITLE OF INVENTION: CONTAINING FIBRONECTIN TYPE
TITLE OF RECHERCES: 77
                                                     NUMBER OF SEVEN THE RESPONDENCE ADDRESS:

CORRESPONDENCE ADDRESS:

ADDRESSEE: The Scripps Research Institute
ADDRESSEE: 1050 No. 6313265th Torrey Pines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 34,163
REFERENCE/DOCKET NUMBER: TS
TELECOMMUNICATION IMPORMATION:
TELEPHONE: (619) 554-2937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION: NAME: Fitting, Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                329 NCVFSVELQLPPKAAAL 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238 PTLDSLTLEWGSPTHP------NGVLTSYILKFQPINNTHELGP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSD----LVPRGSPSPPSFLKITN 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PatentIn Release #1.0, Version
                                  CITY: La Jolla
STATE: California
COUNTRY: U.S. ZIP: 92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98 DVKLTQSMAIIRYIADKHNMLGGSPKERABISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38 SPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
les 236; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 24-JU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                            ----LVEIRIPANESSL 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSVSPSAQPW---THPGQSQLFADLSREELTA-VMRFL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein
internal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24-JUL-1995
N: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21.7%; Score 1164.5; 74.4%; Pred. No. 1.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/08/506,296B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      76:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TSRI 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .1e-105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 4;
                                                                           Road,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -TQRLGPGLVDAAQARPSD
                                                                                                                                                       POLYPEPTIDES
III REPEATS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels 39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 443;
                                                                                                                                                         AND METHODS OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          276
```

7;

COMPUTER READABLE FORM:

S

```
CURRENT APPLICATION NUMBER: US/09/352,159A
CURRENT FILING DATE: 1999-07-12
FEARLIER APPLICATION NUMBER: 60/092,936
EARLIER FILING DATE: 1998-07-25
EARLIER APPLICATION NUMBER: 60/135,391
EARLIER FILING DATE: 1999-05-21
NUMBER OF SEQ ID NOS: 46
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                             멂
                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                           US-09-352-159-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-506-296B-70
                                                                                                                                                            GENERAL INFORMATION:

APPLICANT: Duvick, Jonathan P.

APPLICANT: Gilliam, Jacob T.

APPLICANT: Maddox, Joyce R.

TITLE OF INVENTION: Polyol Amine Oxidase
TITLE OF INVENTION: Polynucleotides and Related
FILE REFERENCE: 1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                      Sequence 31, Appli
Patent No. 6211434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/506,296B
FILING DATE: 24-JUL-1995
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Fitting, Thomas
REFERENCE/DOCKET NUMBER: 34,163
REFERENCE/DOCKET NUMBER: TSRI 488.0
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION 554-2937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: (619) 554-6312 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 442 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               158
                                                                                                                                                                                                                                                                                                                                                                                                                                309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122
                                                                                                                                                                                                                                                                                                                                                                                             298 YRFQLQATTKEGPG 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE:
COMPUTER: II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FLSKLPEMIKMFEDRISHKTYINGDHVTHPDFMLYDALDVVLYMDPMCIDAFPKIVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PSVSPSAQPWT-----LTAVMR 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                              F-----LTQRLGPG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OSNTSLLLRWOPPLSHNGVLTGYVLSYHPLDEGGKGQLSFNLRDPELRTHNLTDLSPHLR
                                                                                                                                                                                                                                                                                                      Application US/09352159A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               internal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21.7%;
75.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      70:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1164; DB 4;
Pred. No. 1.3e-105;
7; Mismatches 33;
                                                                                                                                                                             Polypeptides and Methods
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 442;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     237
                                                                                                                                                                               of Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>ن</u>
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Unknown US-09-352-159-31
                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
RESULT 10
US-09-352-168-31
                                                                                   Š
                                                                                                                밁
                                                                                                                                         Š
                                                                                                                                                                       밁
                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 325; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 1196
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          158
                                                                                                                                                                                                                                                                                                                                               408
                                                                                                                                                                                                                                                                                                                                                                                                        375
                                                                                                                                                                                                                                                                                                                                                                                                                                 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                              339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              239
                                                                                                                                                                                                    809
                                                                                                                                                                                                                               511
                                                                                                                                                                                                                                                           554
                                                                                                                                                                                                                                                                                                                   509
                                                                                                                                                                                                                                                                                                                                                                           456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           265
                                                                                                                                         636 GVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQ-GL------PLRRHHSDLYSH 685
                                                                                                                                                                                                                                                                                      451 PLATLADSAASGERLDADLSRLRSTDPATLMARADAARPASRDLRRPRPTGPIVDGHVLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PATQ-FGSDCFGAAYLRKGSLAPGVSEDCLY-LNVWAPSGAKPGQYPVMVWVYGGGFAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS---DLVPRGSPEFTDFPVRRTD 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                               QTDSAAIAAGQLAPV--RVLIGTNADEG-RAFLGRAPMETPADYQAYLEAQFGDQAAAVA 567
                                                                                                                                                                                                                                                                                                                                               GDPGRVTVFGESAGASAIGLLLTS------
                                                                                                                                                                                                                                                                                                                                                                          GD--RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -AALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPY 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FLTQRLGPGLVDAAQARP-----SDNCVFSVELQLPPKA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LGQVQGLAGDVMSFRGIPYAAPPVGGLRWKPPQHARPW-------AGVR 280
                                                                                   YFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGK 741
                                                                                                              GAEIPYV-----
                                                                                                                                                                                                                                                          QGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV-YEISLQ-----EALAIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAAMPYYD--GEALARQGVVVVTF----NYRTNILGFFAHPG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GDGGEPSQLPHCPSVSP------SAQPWTHPGQSQLFADLSREELTAVMR 308
                                                        AWVRFAK-----
                                                                                                                                                                         ACYPLDGRATPKEMVARIFGDNQFNRGVSAFSEALVRQGAPVWRYQFNGNTEGGRAPATH 627
                                                                                                                                                                                                  -----GGNSPAAMTTR-YVDGGFGMG-------KY-----KY-----TTPLTR 635
                                                                                                                                                                                                                                                                                                                   -----GNYGLLDILAALRWVQSNARAFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.7%;
38.9%;
                                                                                                                -----FGVFKLDELGLFDWPPEGPTPADRALGQLMSS
                                                        -NGDPAGDALTWPA-----YSTG--KSTMTFGPEGR 701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1163; DB 4;
Pred. No. 9.1e-105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches 188;
                                                                                                                                                                                                                                                                                                                                               ----PLSKGLFRGAILESPGLTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                               450
                                                                                                                                                                                                                                                             607
                                                                                                                                                                                                                                                                                        510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                        407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  264
                                                                                                                                                                                                                                                                                                                   553
                                                                                                                                                                                                                                                                                                                                                                           508
                                                                                                                                                                                                                                                                                                                                                                                                                                 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                              374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      31;
```

Sequence 31, Application US/C Patent No. 6211435
GENERAL INFORMATION:
APPLICANT: Crasta, Oswald R.
APPLICANT: Duvick, Jonathan

שי

Application US/09352168A

```
; TYPE: PRT ; ORGANISM: Unknown US-09-352-168-31
                                Ş
                                                                     밁
                                                                                                 .02
                                                                                                                                              밁
                                                                                                                                                                          Š
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 31
LENGTH: 1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: Amino Polyol Amine Oxidase
TITLE OF INVENTION: Polynucleotides and Related Polypeptides and Methods
FILE REFERENCE: 0875
CURRENT APPLICATION NUMBER: US/09/352,168A
CURRENT FILING DATE: 1999-07-12
EARLIER APPLICATION NUMBER: 60/092,936
EARLIER FILING DATE: 1998-07-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Folkerts, Otto
APPLICANT: Gilliam, Jacob T.
APPLICANT: Maddox, Joyce R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 33 SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                239
628
                                                                                                                                              511
                                                                                                                                                                                    554
                                                                                                                                                                                                                        451
                                                                                                                                                                                                                                                           509
                                                                                                                                                                                                                                                                                                408
                                                                                                                                                                                                                                                                                                                                  456
                                                                                                                                                                                                                                                                                                                                                                                                         402 HRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
wes 325; Conservat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PATQ-FGSDCFGAAYLRKGSLAPGVSEDCLY-LNVWAPSGAKPGQYPVMVWVYGGGFAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LGQVQGLAGDVMSFRGIPYAAPPVGGLRWKPPQHARPW------AGVR 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS---DLVPRGSPEFTDFPVRRTD 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
GAEIPYV---
                                                                                                                                                                                  QGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLV-YEISLQ-----EALAIY 607
                                                                                                                                                                                                                       PLATLADSAASGERLDADLSRLRSTDPATLMARADAARPASRDLRRPRPTGPIVDGHVLP
                                                                                                                                                                                                                                                                                                                                  GD--RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -AALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPY 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GDGGEPSQLPHCPSVSP-------SAQPWTHPGQSQLFADLSREELTAVMR 308
                                GVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQ-GL-----PLRRHHSDLYSH
                                                                       ACYPLDGRATPKEMVARIFGDNQFNRGVSAFSEALVRQGAPVWRYQFNGNTEGGRAPATH
                                                                                                                                              QTDSAAIAAGQLAPV--RVLIGTNADEG-RAFLGRAPMETPADYQAYLEAQFGDQAAAVA 567
                                                                                                                                                                                                                                                         -LAQLEAQFEAG------LVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYP 553
                                                                                                                                                                                                                                                                                                GDPGRVTVFGESAGASAIGLLLTS------PLSKGLFRGAILESPGLTR 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                TAAMPYYD--GEALARQGVVVVTF-----NYRTNILGFFAHPG---------
                                                                                                                                                                                                                                                                                                                                                                       -----GNYGLLDILAALRWVQSNARAFG
                                                                                                         -GGNSPAAMTTR-YVDGGFGMG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21.7%; Score 1163; DB 4; 38.9%; Pred. No. 9.1e-105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   55; Mismatches 188;
----FGVFKLDELGLFDWPPEGPTPADRALGQLMSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 1196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels 268;
                                                                                                         -TTPLTR 635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                       627
                                                                                                                                                                                                                       510
                                                                                                                                                                                                                                                                                                                                                                                                           455
                                    685
                                                                                                                                                                                                                                                                                                                                                                       407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       338
666
                                                                                                                                                                                                                                                                                                                                                                                                                                                374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31;
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 11
US-08-910-820-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                              Ş
                                                                                                                                              В
                                                                                                                                                                         Ş
                              망
                                                        δõ
                                                                                      В
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                         US-08-910-820-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 4, Application US/08910820 Patent No. 6258579 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
                                                                                                                                                                                                                                                                           Query Match
Best Local S
                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (206) 682-603
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Mercu-
APPLICANT: Zhu, Hengyi
APPLICANT: Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Murray, Brion W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN
TITLE OF INVENTION: COMPLEX AND METHODS OF USE
NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION: TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     667 AWVRFAK------NGDPAGDALTWPA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              686 YFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGK
                                                                                                                                                                                                                                                                                                                                                                   LENGTH:
 278
                              182
                                                                                       122
                                                                                                                   158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: Seattle
STATE: Washington
                                                                                                                                                                                                                                   .38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
STREET: 63
                                                                                                                                                                                                                                                               Local Similarity
les 227; Conserv
                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                               62
                                                                                                                                                                           98
                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                       N
                                                                                   SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
SVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGL 318
                            RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDPREFIVTDMAG-----VACL
                                           RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E: SEED and BERRY LLP 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                 272 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                             (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                           682-6031
                                                                                                                                                                                                                                                                             21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                 4.
                                                                                                                                                                                                                                                               Score 1162; DB 4;
Pred. No. 8.6e-106;
4; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --YSTG--KSTMTFGPEGR 701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              THEREFOR
                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                               272;
                                                                                                                                                                                                                                                                  18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 741
                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                          61
                                                                                                                                                                                                                                      97
                                 235
```

GKTADADEWCDSGLGSLGPDAAAPG----

```
RESULT 12
US-08-327-874A-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENERAL INFORMATION:
                                                                                                          NFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 397 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/808,523
FILING DATE: 16-DEC-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: ROGERS & WELLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES:
                                                                                                                                                   TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                            FILING DATE: 13-JUL-
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                MOLECULE TYPE: p
                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 3634-8-CIP10
                                                                                                                                                                                                                                      APPLICATION NUMBER: FILING DATE: 24-OC
                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: FILING DATE: 25-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                            TOPOLOGY:
                                                                                                                                      TELEPHONE:
                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10166
                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Application US/08327874A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      200 PARK AVENUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZUMSTEIN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DRUT
                                                                                                                        (212)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BAYLOR COLLEGE OF MEDICINE
                                            linear
                                                                                                                                                                                                                                                                                                                                                                              15-APR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JMBER: US 08/113,372
30-AUG-1993
                                                                                                                                                                                                                                                                               JMBER: PCT US94/09700
26-AUG-1994
                             protein
                                                                                                                                                                                                                                                                                                                              13-JUL-1994
                                                                                                                                                                                                                                                                                                                                                                                                                           25-BEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17-NOV-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02-NOV-1992
                                                                                                                                                                                                  GERARD P
                                                                                                                        878-8375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DAVID J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SENESCENT CELL DERIVED INHIBITORS DNA SYNTHESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N, LOUIS A.
                                                                                                                                     878-3148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US 07/970,462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US/08/327,874A
                                                                                                                                                                                                                                                                                                                                                                                           US 08/229,420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 08/153,564
                                                                                                                                                                                                                                                                                                                                                                                                                                        US 08/203,535
                                                                                                                                                                                                                                                 08/327,874
                                                                                                                                                                                                                                                                                                                                             US 08/274,535
```

```
ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; CLONE: GST-SDI-1 fusion protein US-08-327-874A-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 224; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA: APPLICATION NUMBER: PC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                              CLASSIFICATION DATA:
PRIOR APPLICATION DATA:
07/808,523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 3
                 PRIOR APPLICATION DATA:
                                                                      PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    238 AGDVRQNPCGSKACRRLFGPVDSEQLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        278 SVSPSAQPWTHPGQSQLFADLSREELT 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                   APPLICATION NUMBER: US 08/113,372 FILING DATE: 30-AUG-1993
                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                     APPLICATION NUMBER: US 0 FILING DATE: 15-APR-1994
                                                                                         APPLICATION NUMBER: US 08/203,535 FILING DATE: 25-FEB-1994
                                                                                                                                              APPLICATION NUMBER: US 0 FILING DATE: 17-NOV-1993
                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 0 FILING DATE: 16-DEC-1991
                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: HOWREY & SIMON
STREET: 1299 PENNSYLVANIA AVENUE,
CITY: WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS---DLVPRGSPRGDPPAMSE-P 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application PC/TUS9409700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SMITH, JAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BAYLOR COLLEGE OF MEDICINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.7%; Score 1162; DB 4; 83.9%; Pred. No. 1.7e-105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA SYNTHESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SENESCENT CELL DERIVED INHIBITORS
                                                      US 08/229,420
                                                                                                                                                              US 08/153,564
US 08/274,535
                                                                                                                                                                                                                                                                               US 07/970,462
                                                                                                                                                                                                                                                                                                                                                                                                               PCT/US94/09700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 397;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
```

```
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08:910-820-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; CLONE: GS
PCT-US94-09700-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 224; Conserv
                                                                                                                                                                                                                                                                                                                                                                                          Sequence 6, Application US/08910820 Patent No. 6258579
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE:
HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IMMEDIATE SOURCE:
CLONE: GST-SDI-1 fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
                                              SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA:
                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                      STATE: Wartle
                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER: 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE:
                                                                                                                                                                                                                                                                            PPLICANT: Murray, Brion W.
ITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
ITLE OF INVENTION: COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ENGTH:
                             APPLICATION NUMBER:
LASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SVSPSAQPWTHPGQSQLFADLSREELT 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLSKLPEMLKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGDVRQNPCGSKACRRLFGPVDSEQLS
                                                                                                                                                98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUERBACH, JEFFREY
                                                                                                                                                                          Washington
                                                                                                                                                                                                              6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (202)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                             Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                         Zhu, Hengyı
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                             Li, Gian
                                                                                                                                                                                                                                                                                                                                                                             Mercurio, Frank
                                                                                                                                                                                                                               SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein
12-AUG-1997
4: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             383-6610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               383-7451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21.7%;
                              US/08/910,820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1162; DB 5;
Pred. No. 1.7e-105;
O; Mismatches 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             225-102-CIP7-PÇT
                                                                                                                                                                                                              701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ·DLVPRGSPRGDPPAMSE-P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 397;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-910-820-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 15
US-08-506-296B-71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 227; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 71, Applia Patent No. 6313265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 272 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOTTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                     ZIP: 92037
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
COMPUTER: IBM PC com
                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Phillips, Guardelland: Cunningham, APPLICANT: Crossin, Kat
                                                                        APPLICATION NUMBER: US/01
FILING DATE: 24-JUL-1995
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Crossin, Kathryn L.
TITLE OF INVENTION: NEURITE OUTGROWTH-PROMOTING
TITLE OF INVENTION: CONTAINING FIBRONECTIN TYPE
                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
NAME: Fitting, Thomas
REGISTRATION NUMBER: 34,163
REFERENCE/DOCKET NUMBER: TSRI 488.0
RELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                236 GKTADADEWCDAGLGALGPDAAAPG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                278 SVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGL 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                            CITY: La Jolla
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                    STREET:
                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDPREFIVTDMAG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          l: 272 amino acids amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/08506296B
                                                                                                                                                                                                                                                                                                                                E: The Scripps Research Institute
10550 No. 6313265th Torrey Pines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                               U.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Phillips, Greg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         David J.
                                                                                                                                                                                                                          Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31,392
3ER: 86
                                                                                                                                  US/08/506,296B
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bruce A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1161; DB 4; pred. No. 1.1e-105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                      Version
                                                                                                                                                                                                                                                                                                                                    Road,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 272;
                                                                                                                                                                                                                                                                                                                                                                                                        POLYPEPTIDES III REPEATS AND METHODS OF US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2
```

```
; MOLECULE TYPE: protein ; FRAGMENT TYPE: C-terminal US-08-506-2968-71
Search completed: May 20, 2003, 11:41:03 Job time: 37.1643 secs
                                                        ₽
                                                                                Ş
                                                                                                              밁
                                                                                                                                      Qy
                                                                                                                                                                      밁
                                                                                                                                                                                               Š
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 21.7%; Score 1161; DB 4; Length 635; Best Local Similarity 61.6%; Pred. No. 4.7e-105; Matches 252; Conservative 11; Mismatches 51; Indels 95; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (619) 554-6312
INFORMATION FOR SEQ ID NO: 71:
SEQUENCE CHARACTERISTICS:
LENGTH: 635 amino acids
TYPE: amino acid
TYPE: amino acid
                                                  350 ---QYRFQLQ-----ATTQQGGPGQAIVREGGTMALFGKPDFGNIS 387
                                                                                                                                                                                                                       328 DNCVFSVELQLPPKAAALAHLDRGSPPPA--REALAIVFFGRQPQPNVS 374
                                                                                                          302 PPLSHNGVLTGYLLSYHPVEGESKEOLFFNLSDPELRT--HNLT-NLNPDL------
                                                                                                                                   288 ------HP--GQS--QLFADLSREELTAVMRFLTQRLGPGLVDAAQARPS 327
                                                                                                                                                                242 AILSGLRPYSSYHVEVQAFNGRGLGPASEWTFSTPEGVPGHPEALHLECOSDTSLLLHWO 301
                                                                                                                                                                                            11;
```

```
Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                        Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB seq
1162
1161
1161
1160.5
1157.5
1157.5
1157.5
1154
1154
1154
1154
1153
                                                                                                                                                                                                                                          3967
2480.5
1165.5
                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                 derived by analysis of the total score distribution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                          Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             375593 seqs, 99172665 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-081-408-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       May 20, 2003, 11:37:59; Search time 159.01 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Published_Applications_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                              /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MDWLRNLLFLMAAAQSINAA.....QAAACAPDLPAFSHGGFSHN 998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*/cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:
                                                                                                                                                                                                                                                                                                                          Length
1140
282
282
282
282
282
412
364
                                                                                                                                                                           998
763
729
401
272
272
272
272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version (c) 1993 - 2003
                                                                                                                                                                                                                                                                                                                          ВB
                                                                                                                                                                                              9
                                                                                                                                                                                                                                                          10
                                                                                                                                                                           10
                         US-09-844-908-6

US-09-844-908-6

US-09-910-600-26

US-09-910-600-26

US-10-081-408-5

US-09-824-438-6

US-09-824-438-6

US-09-844-988-3

US-09-844-988-3

US-09-844-988-3

US-09-844-988-3
                                                                                                                                                                                                                       US-10-081-408-20

US-10-081-408-2

0 US-09-919-497-51

US-10-190-866A-1

US-09-844-988-4
                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       622.443 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        without alignments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.1.5
Compugen Ltd
                     Sequence 20, Appli
Sequence 51, Appli
Sequence 11, Appli
Sequence 1, Appli
Sequence 4, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 26, Appli
Sequence 5, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 3, Appli
                                                                                                                                                                                                                                                                                                                       Description
           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                           ) have a
eing printed,
                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 20, Application US/10081408

Patent No. US20020160482A1

GENERAL INFORMATION:
APPLICANT: Abrahms,n, Lars
APPLICANT: Nilsson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001

CURRENT APPLICATION NUMBER: US/10/081,408

CURRENT FILING DATE: 2002-02-21

PRIOR APPLICATION NUMBER: SE 0100625-3

PRIOR FILING DATE: 2001-02-23

PRIOR FILING DATE: 2001-02-28

PRIOR FILING DATE: 2001-02-28
                          밁
                                                     δÃ
                                                                                         밁
                                                                                                                     Š
                                                                                                                                                         В
                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-081-408-20
                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 20
LENGTH: 998
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                   ORGANISM: Artificial Sequence
                                                                                          61
                                                                                                                         61
```

45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23 11	22	21	20
99	101	102	103	104	106	106	109.5	164.5	169.5	173.5	179.5	196.5	196.5	182.5	1144	1145	1148	1148	1148	1148	1148	148.5	1150	1150	1151
1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.0	3.1	3.2	3.2	3.4	3.7	3.7	9.0	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.5	21.5	21.5
233	617	1194	2224	980	617	233	240	222	203	222	222	230	222	229	218	649	348	348	348	348	324	354	394	245	239
10	ဖ	φ	φ	φ	φ	10	9	φ	ø	ø	ø	10	ဖ	ဖ	9	9	ဖ	φ	ø	9	9	10	10	ဖ	10
US-09-765-213A-4	US-10-005-530-46 · '	US-09-738-626-5832 (US-10-115-563-14	US-09-908-193-22	US-10-005-530-58	US-09-765-213A-2	US-09-964-899-23	US-09-784-739-1	US-09-847-208-48	US-09-784-739-5	US-09-784-739-3	US-09-925-301-1318	US-09-784-739-4	US-10-102-806-554	US-10-081-408-4	US-10-174-784-9	US-09-910-600-25	US-09-910-600-24	9-910-600	US-09-910-600-22	US-10-267-311-25	US-09-823-153-8	US-09-990-578-4	US-10-267-311-23	US-09-823-153-7
Sequence 4, Appl	Sequence 46, App	5832	Sequence 14, App		Sequence 58, App	Sequence 2, App	23,	Sequence 1, Appl	48,	<u>ب</u>	3, Appl	e 13	4, Ap	554	Sequence 4, Appl	9, A	25,	24,	23,	22,	25,	8	04,	Sequence 23, App.	Sequence 7, App

ALIGNMENTS

OTHER INFORMATION: Recombinant construct US-10-081-408-20 Query Match Best Local S Matches 998 181 GDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIEAIPQIDKYLKSSKYIAWPLQ Local Similarity nes 998; Conserva 1 MDWLRNLLFLMAAAQSINAAQHDEAVDNKFNKEQQNASPILGYWKIKGLVQPTRLLLEYL 60 SPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLPEMLKMFEDRLSHKTYLN 180 SPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLPEMLKMFEDRLSHKTYLN EEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVKLTQSMAIIRYIADKHNMLGG 120 MDWLRNLLFLMAAAQSINAAQHDEAVDNKFNKEQQNASPILGYWKIKGLVQPTRLLLEYL 100.0%; llarity 100.0%; Conservative 0 0; Score 5357; Pred. No. 0; Mismatches DΒ 9; 0, Indels Length 998; 0: Gaps 180 60

```
Sequence 2, Application US/10081408

Patent No. US20020160482A1

GENERAL INFORMATION:
APPLICANT: Abrahms, n, Lars
APPLICANT: Nilsson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001

CURRENT APPLICATION NUMBER: US/10/081,408

CURRENT FILING DATE: 2002-02-21

PRIOR APPLICATION NUMBER: SE 0100625-3

PRIOR APPLICATION NUMBER: US 60/272,247

PRIOR FILING DATE: 2001-02-28

NUMBER OF SEO ID NOS: 20

SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                             RESULT 2
US-10-081-408-2
                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                         ₽
                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                               841
                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                      901
                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                            961
                                                                                                                                                                                                                                                  901
                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                        961
                                                                                                                                                                                                                                                                                                                                                                          VPPGPAPPLQEYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLYYEISL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GDHYTHPDFMLYDALDVYLYMDPMCLDAFPKLVSFKKRIEAIPQIDKYLKSSKYIAWPLQ
                                                                                                                                                                                                                                                                                                      QMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSSVFNQNDPWAPTVDFSDFIN
                                                                                                                                                                                                                                                                                                                                   QEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTI
                                                                                                                                                                                                                   RGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSHN 998
                                                                                                                                                                                                                                                           NETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                            QEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISL
                                                                                                                                                                                                                                                                                           QMLSFAGEPLPQNS$MARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFIN
                                                                                                                                                                                                        RGDQDAGACEVNPLACLPQAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                  NET IAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                    840
                                                                                                                                                                                                                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
```

```
; SEO ID NO 2
; LENGTH: 763
; TYPE: PRT
; ORGANISM: Homo 9
US-10-081-408-2
                                           US-09-19-497-51

Sequence 51, Application U
Patent No. US20020106662A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                              γQ
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망양
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                              δÃ
                                                                                                                                                    밁
                                                                                                                                                                   Š
                                                                                                                                                                                        밁
                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                          밁
                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 735; Conserv
APPLICANT: Mutter, George L.
TITLE OF INVENTION: PROGNOSTIC CLASSIFICATION
FILE REFERENCE: B0801/7225
CURRENT APPLICATION NUMBER: US/09/919,497
CURRENT FILING DATE: 2001-07-31
                                                                                                                                                                                                                                                                                                          448
                                                                                                                                                                                                                                                                                                                                                                                                      563
                                                                                                                                                                                                                                                                                                                                                                                                                                            503
                                                                                                                                                                                                                                                                                                                                                                                                                                                              208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        263 QGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVWRFLTQRLGPGLVDAA 322
                                                                                                                                                                                                             863
                                                                                                                                                                                                                               568
                                                                                                                                                                                                                                                   803
                                                                                                                                                                                                                                                                     508
                                                                                                                                                                                                                                                                                       743
                                                                                                                                                                                                                                                                                                                            683
                                                                                                                                                                                                                                                                                                                                                388
                                                                                                                                                                                                                                                                                                                                                                 623
                                                                                                                                                                                                                                                                                                                                                                                   328
                                                                                                                                                                                                                                                                                                                                                                                                                        268
                                                                                                               748
                                                                                                                                 983
                                                                                                                                                    889
                                                                                                                                                                       923
                                                                                                                                                                                          628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAA
                                                                                                                                                                                                                              SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLYYEISLQEALAIYGGNSPAAWTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                                         GRYYDSLAQLEAGFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                                                                  GRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                    SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDG
                                                                                                               CAPDLPAFSHGGFSHN
                                                                                                                                 CAPDLPAFSHGGFSHN
                                                                                                                                                             AEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA 982
                                                                                                                                                                                         ERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPH
                                                                                                                                                                                                    ERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPH
                                                                                                                                                    AEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           74.18;
                                                               US/09919497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 3967; D
Pred. No. 0;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DΒ
                             ဝှု
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87
                                                                                                                                                                                                                                                                                                                                                                  682
                                                                                                                                                                                                                                                                                                                                                                                                                                            562
                                                                                                                                                                                                                                                                                                                                                                                                                                                               267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    207
                                                                                                                                                                                                                                                                                                                                                447
                                                                                                                                                                                                                                                                                                                                                                                                                          327
                                                                                                                                                     747
                                                                                                                                                                                           687
                                                                                                                                                                                                                                627
                                                                                                                                                                                                                                                                      567
                                                                                                                                                                                                                                                                                                           507
                                                                                                                                                                                                                                                                                                                                                                                     387
```

```
PRIOR APPLICATION NUMBER: US 60/
PRIOR FILING DATE: 2000-07-31
NUMBER OF SEQ ID NOS: 100
SOFTWARE: Patentin version 3.0
SEQ ID NO 51
LENGTH: 729
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; ORGANISM: Homo sapiens US-09-919-497-51
                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                              RESULT 4
US-10-190-866A-1
                                                                                                                                           밁
                                                                                                                                                              S
                                                                                                                                                                                         В
                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 468; Conserv
            Sequence 1, Application US/10190866A Publication No. US20030092619A1 GENERAL INFORMATION:
APPLICANT: Boehringer
                                                                                                                                                                                                                                                                                                                                  447
                                                                                                                                                                                                                                                                                                                                                                                                        628
                                                                                                                                                                                                                                                                                                                                                                                                                              327
                                                                                                                                                                                                                                                                                                                                                                                                                                                      568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         268
                                                                                                                                                                                         600
                                                                                                                                                                                                                                        567
                                                                                                                                                                                                                                                                                       507
                                                                                                                                                                                                                                                                                                                                                                                 387
                                                                                              720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYM 387
                                                                                                                                                                                                                                                                                   DIGQLEREFKSGRLEVVRVPLPPPNGASSLRSRNSPGPLPPLQFSPQGSQYSVQGNLVVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYD 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNCIFSVELQLPPKAAALAHLDRGSPPPAREALAIVLFGGQPQPNVSELVVGPLPHPSYM
                                                                                                                                                                                        SLAQLEAGFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATPRGLRSRERTTWIGLYHNISGVGLFLHPVGLELLLDHRALDPAHWTVQQVFYLGHYYA
                                                                                                                      DLPAFSHGGF 995
                                                                                                                                                           IPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAP 985
                                                                                                                                                                                                                                       MEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERY
                                                                                                                                                                                                                                                                                                                                   GGLASSALVVRSVSSVGNYDY IWDFVLYPNGALEGRVHATGY INTAFLKGGEEGLLFGNR
                                                                                                                                                                                                                                                                                                                                                                                 RNSRGLVRGVDCPYQATMVDIHILVGKGAVQLLPGAVCVFEEAQGLPLRRHHNYLQNHFY
                                                                                                                                                                                                                                                                                                                                                                                            RDVTVERHGGPLPYHRRPVLRAEFTQMWRHLKDVELPKAPIFLSST--FNYNGSTLAAVH
                                                                                              DLPPFSYHGF
                                                                                                                                            IPNTVTLGNRVGFLLRPYNFFDEDPSIFSPGSVYFEKGQDAGLCSINPVACLPDLAACVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46.3%; Score 2480.5; DB 10; Length 729; nilarity 64.1%; Pred. No. 2.4e-203; Conservative 86; Mismatches 145; Indels 31;
                                                                                              729
 Ingelheim International GmbH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/221,735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                         745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88
                                                                                                                                             719
                                                                                                                                                                                                                                                               865
                                                                                                                                                                                                                                                                                                                                   506
                                                                                                                                                                                                                                                                                                                                                                                 446
                                                                                                                                                                                                                                                                                                                                                                                                                              386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       206
                                                                                                                                                                                         659
                                                                                                                                                                                                                                        599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
,,
```

Sequence 4, Application US/09844988 Patent No. US20020158764A1 GENERAL INFORMATION:

Mercurio, Frank

NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP

ဝ္ဂ

Zhu, Hengyi Barbosa, Miguel Li, Gian Murray, Brion W

INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR

STREET: 6300 Columbia Center, CITY: Seattle STATE: Washington COUNTRY: USA ZIP: 98104

701

Fifth Avenue

```
PRIOR APPLICATION NUMBER: US 60/306,552
PRIOR FILING DATE: 2001-07-19
PRIOR APPLICATION NUMBER: ED 01117097.4
PRIOR FILING DATE: 2001-07-13
NUMBER OF SEO ID NOS: 6
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 1
LENGTH: 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; ORGANISM: Artificial Sequence; PERTURE:
; OTHER INFORMATION: Description of Artificial Sequence:
; OTHER INFORMATION: STAT6 fragment
US-10-190-866A-1
RESULT 5
US-09-844-988-4
                                                                                                                             밁
                                                                                                                                                        Š
                                                                                                                                                                                            밁
                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: Method for identifying substances which modulate TITLE OF INVENTION: interleukin 4 signaling FILE REFERENCE: 1/1214 US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT FILING DATE: 2002-10-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: PRT
                                                                  321 M
                                                                                                  392 V
                                                                                                                                                                                            238
                                                                                                                                                                                                                          273 LPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVF
                                                                                                                                                                                                                                                                                                                           122
                                                                                                                                                                                                                                                                                                                                         158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                              276 --HLQMPPSLGQMS-LPFDQPHPQG-----LLPCQPQEHAVSS-----PDPLLCSDVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38 SPILGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                      98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                       SVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPN-VSELVVGPLPHPSYMRDVT
                                                                                                                                                                                                                                                                                                                        FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                                                                                                                                                                                                                                       DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                            LG--PDMVPQVYP-PHSHSIPPYQGLSPEESVNVL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   248;
                                                                                                  392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ilarity 68.7%
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21.8%; Score 1165.5; DE 68.7%; Pred. No. 3.4e-91 tive 10; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels 47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                            -SAFQEP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  derivative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   401;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                        217
                                                                                                                                                                391
                                                                                                                                                                                                                                                                                           272
                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                       157
                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97
                                                                                                                                  320
                                                                                                                                                                                                275
                                                                                                                                                                                                                              332
                                                                                                                                                                                                                                                            237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10;
```

```
US-09-844-908-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-844-988-4
                                                                                                                                                                                                                                                                                                               Sequence 4, Application US/09844908 Patent No. US20020151021A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: 4: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              236 GKTADADEWCDSGLGSLGPDAAAPG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: MAXI, DAVID J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/09/844,988
FILING DATE: 26-Apr-2001
CLASSIFICATION: <UNknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED an
                                                                                                                                               NUMBER OF SEQUENCES:
                                                                                                                                                                Murray, Brion W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Flopp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RIEAIPOIDKYLKSSKYIAWPLOGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SVSPSAQPWTHPGOSQLFADLSREELTAVMRFLTQRLGPGL 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SPILGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                    CITY: Seattle
STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 08/910,820 FILING DATE: 1997-08-13
                                                                           STREET: 6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: (206) 682-6031
                     COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 272 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                           Mercurio, Frank
                                                                                                                                                                                                                                                  Zhu, Hengyi
Barbosa, Miguel
                                                                                                                                                                                                                               Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.7%;
                                                                                                     SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               oppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1162;
Pred. No. 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---GPGL 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 9; Length 272; .6e-91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                            RESULT 7
US-09-844-988-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; SEQUENCE DESCRIPTION: SEQ ID NO: US-09-844-908-4
                                                                                                                                                                                                                                                                                                           Sequence 6, Application US/09844988 Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 227; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: (206) 682-6
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            236 GKTADADEWCDSGLGSLGPDAAAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 278 SVSPSAOPWTHPGOSQLFADLSREELTAVMRFLTQRLGPGL 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                     NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/09/844,908
FILING DATE: 27-Apr-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                              TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                           APPLICANT:
                 STATE: Washington COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 272 amino acids
TYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                          CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEPHONE: (206) 622-4900
ZIP: 98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                            Zhu, Hengyi
Barbosa, Miguel
                                                                                                                                                                                                                                                                                       Mercurio, Frank
                                                                                                                                                                                                         Murray, Brion W.
                                                                                                                                                                                                                               Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21.7%; Score 1162; DB 10; 80.8%; Pred. No. 3.6e-91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GPGL 264
                                                                                701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
```

밁

ş

ş

₽ Ş 밁 ş 밁 S

```
US-09-844-908-6
; Sequence 6, Application US/09844908
; Patent No. US20020151021A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-844-988-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO: 6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       236 GKTADADEWCDAGLGALGPDAAAPG------GPGL 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               278 SVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGL 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>წ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ผ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: MAKI, DAVIG J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/09/844,988
FILING DATE: 26-Apr-2001
CLASSIFICATION: <Unknown>
FRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                           TITLE OF
                                                                                                                                                                                                                                                                                               APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                 NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDPREFIVTDMAG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 08/910,820 FILING DATE: 1997-08-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: (206)
TELEFAX: (206) 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, Version #1.30
                 CITY: Seattle
STATE: Washington
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: <Unknown>
                                                                               STREET: 6300 Columbia Center, 701 Fifth Avenue
                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                   INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
  98104
                                                                                                                                                                                                      Barbosa, Miguel
Li, Gian
Murray, Brion W.
                                                                                                                                                                                                                                                                         Zhu, Hengyi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                       SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1161; DB 9;
Pred. No. 4.4e-91;
4; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --- VACL 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                 US-09-910-600-26
Sequence 26, Application US/09910600
Publication No. US20030036631A1
GENERAL INFORMATION:
                   SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 26
LENGTH: 298
TYPE: PRT
                                                                                                 CURRENT APPLICATION NUMBER: US/09/910,600 CURRENT FILING DATE: 2001-07-20 PRIOR APPLICATION NUMBER: 60/220,139 PRIOR FILING DATE: 2000-07-21 NUMBER OF SEQ ID NOS: 32
                                                                                                                                                                                                         APPLICANT: Longphre, Malinda
APPLICANT: Chang, Han
APPLICANT: Whitney, Gena
TITLE OF INVENTION: NOVEL SIGLECS AND USES THEREOF
FILE REFERENCE: D0003NP
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     218
```

밁 Ş 밁 á

밁 õ 밁 õ Š

밁

```
US-09-844-908-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 227; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEPAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 6:
                                                                                                   182 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDPREFIVTDMAG------VACL
                                                                                                                                                                                                    122 FLSKLPEMLKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                              158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                               278 SVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGL 318
236 GKTADADEWCDAGLGALGPDAAAPG------GPGL 264
                                                                                                                                                                                                                                                                                                                                                                                                                               38 SPILGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                                       62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                    98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                     2 SPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: linear SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                RIEAIPQIDXYLKSSKYIAWPLOGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/09/844,908 FILING DATE: 27-Apr-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 272 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Maki, David J. REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1161; DB 10;
Pred. No. 4.4e-91;
4; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                        235
```

```
CURRENT APPLICATION NUMBER: US/10/081,408
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: SE 0100625-3
PRIOR FILING DATE: 2001-02-23
PRIOR APPLICATION NUMBER: US 60/272,247
PRIOR FILING DATE: 2001-02-28
NUMBER OF SEQ ID NOS: 40
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 5
LENGTH: 218
TYPE: PRT
    밁
                            δÃ
                                                              밁
                                                                                         δÃ
                                                                                                                       В
                                                                                                                                                    Š
                                                                                                                                                                                    Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                              ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-910-600-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
US-10-081-408-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                          ; ORGANISM: Schistosoma japonicum US-10-081-408-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: Abrahms, n, Lars
APPLICANT: Nilsson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
Matches 221; Conserv
                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 5, Application US/10081408 Patent No. US20020160482A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE: OTHER INFORMATION: Description of Artificial Sequence: L3cyto-Y641 OTHER INFORMATION: alone
                                                               122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
182 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                            218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 254
                                                                         158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 158
                                                                                                                    38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                               Local Similarity es 217; Conserv
                                                                                                                                                                                    N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N
                                                                                                                                                                               SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAGPLAQ 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SVSPSAQ 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPILGYWKIKGLVOPTRILLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21.7%;
                                                                                                                                                                                                                                                            21.6%;
                                                                                                                                                                                                                                             0.
                                                                                                                                                                                                                                                          Score 1159; DB 9; Pred. No. 4.6e-91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1160.5; DB
Pred. No. 5.6e-91;
3; Mismatches 16
                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9;
                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GSPNSINVVP
                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7;
                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                 61
                                                                                                                                                                                                               97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      234
                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ۲.
```

```
RESULT 12
US-09-824-438-6
                                                                                                                                    밁
                                                                                                                                                                     Š
                                                                                                                                                                                                             В
                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                              δã
                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: Description of Artificial Sequence: GST/BLT fusion; OTHER INFORMATION: protein US-09-824-438-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-824-438-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Butler, Jon P.
APPLICANT: Hale, John E.
APPLICANT: Heath Jr., William F.
APPLICANT: Schoner, Brigitte E.
APPLICANT: Heiman, Mark L.
APPLICANT: Becker, Gerald W.
Sequence 6, Application US/09824438 Publication No. US20030073621A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 7
LENGTH: 422
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 7, Application US/09824438 Publication No. US20030073621A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/824,438
CURRENT FILING DATE: 2001-10-29
NUMBER OF SEQ ID NOS: 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: Beta-lipotropin and Uses FILE REFERENCE: X-12139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                           271
                                                                                                                                                                                                                                                338
                                                                                                                                                                                                                                                                                                                        278
                                                                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                                                218
                                                                                                                                                                                                                                                                                                                                                                                                                                     122
                                                                                                                                    331 EMRELTGOR 339
                                                                                                                                                                       386 YMRDVTVER 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
nes 241; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N
                                                                                                                                                                                                                                                                                                                                                                                 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                         FLSKLPEMIKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                           HSLLVAAEKKDEGPYRMEHFRWGSPPKDKRYGGFMTSEKSQTPLVTLFKNAIIKNAYKKG 330
                                                                                                                                                                                                                                              LPPKAAA-----LAHLDRGSPPPAREALAIVFFGRQPQPNVS---ELVVGPLPHPS 385
                                                                                                                                                                                                                                                                                                                    SVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQ
                                                                                                                                                                                                                                                                                                                                                           RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKS---DLVPRGSPGIHRDLVPR--
                                                                                                                                                                                                                                                                                                                                                                                                                                   FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Varshavsky, Alexander D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                 ---GSIEGRELTG-----QRLREG--DGPDGPADDGAGAQADLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21.6%; Score 1157.5; DB 9; 65.3%; Pred. No. 1.8e-90; tive 17; Mismatches 68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 422;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                  337
                                                                                                                                                                                                                                                                                 270
                                                                                                                                                                                                                                                                                                                                                         236
                                                                                                                                                                                                                                                                                                                                                                                              277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
```

APPLICANT: Butler, John E
APPLICANT: Hale, John E
APPLICANT: Hath Jr., W
APPLICANT: Schoner, Bri
APPLICANT: Becker, Gera
APPLICANT: Becker, Gera
APPLICANT: Varshavsky,

Hale, John E.
Heath Jr., William F.
Schoner, Brigitte E.
Heiman, Mark L.
Becker, Gerald W.

Alexander D.

```
; OTHER INFORMATION: ; OTHER INFORMATION: US-09-824-438-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-950-634-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILE REFERENCE: X-12139
CURRENT APPLICATION NUMBER: US/09/824,438
CURRENT FILING DATE: 2001-10-29
NUMBER OF SEQ ID NOS: 35
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 4, Application US/09950634
Publication No. US20030032775A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: Beta-lipotropin and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 331
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               338 LPPKAAA-----LAHLDRGSPP 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              271 HSLLVAAEKKDEGPYRMEHFRWGSPP 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                  COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                   Chen, Yanqiu
TITLE OF INVENTION: EFFECTOR PROTEINS
NUMBER OF SEQUENCES: 23
                                                                                                                ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Molnar-Kimber, Katherine
Failli, Amedeo F.
Caggiano, Thomas J.
                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQ 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQEALFQGGDGGEPSQLPHCP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     235;
                                                                                                                                                                                         CITY: Washington
STATE: DC
                                                                                                                                                                                                                        ADDRESSEE: Finnegan, Henderson, Dunner, L.L.P. STREET: 1300 I Street, N.W.
APPLICATION NUMBER: US/09/950,634 FILING DATE: 13-Sep-2001 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                   Nakanishi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Description of Artificial Sequence: GST fusion partner
                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -GSIEGRELTG---
                                                                                                                                                                                                                                                                                                                                               Koji
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   в
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1157; DB 9;
Pred. No. 1.3e-90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -QRLREG---DGPDGPADDGAGAQADLE
                                                                                                                                                                                                                                                          Farabow, Garrett &
                                                                   Version
                                                                                                                                                                                                                                                                                                                엵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43; Indels 40;
                                                                                                                                                                                                                                                                                                                RAPAMYCIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 331;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
```

```
TOPOLOGY: linear

HOLECULE TYPE: peptide
SEQUENCE DESCRIPTION: SEQ ID NO:
US-09-950-634-4
                                                                                                                                                                                                                                                                                           RESULT 14
US-09-844-988-3
                                                                                                                                                                                                                               Sequence 3, Application US Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Sir
Matches 219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4400
TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                               182 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDLVPRGGSPGISGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122 FLSKLPEMIKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                                                                                                                                                                                                                                                                                                                                      218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQ-----SQEALFQGGDGG 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ν
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 08/207,975 FILING DATE: 08-MAR-1994 ATTORNEY/AGENT INFORMATION:
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                   TITLE OF INVENTION: STIMULUS-INDUCIBLE COMPLEX AND METHODS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                            APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US OF FILING DATE: 13-FEB-1995
APPLICATION NUMBER: US OF FILING DATE: 26-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 1140 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REGISTRATION NUMBER: 36,276
REFERENCE/DOCKET NUMBER: 01142.0058-00000
                                                                                                                                                                                                                                                                          Application US/09844988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: Siekman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 08/471,112 FILING DATE: 06-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                Barbosa, Miguel
Li, Gian
                                                                                                                              Murray, Brion W.
                                                                                                                                                                                      Zhu, Hengyi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Michael T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 1155.5; DB Pred. No. 1.3e-89; 1; Mismatches 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08/312,023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08/384,524
                                                                                   METHODS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4..
                                                                                   PROTEIN KINASE
S OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.
                                                                                                                                                                                                                                                                                                                                                                               237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1;
```

COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:

Release #1.0,

Version #1.30

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk

98104

CITY: Seattle STATE: Washington COUNTRY: USA

701

Fifth Avenue

```
RESULT 15
US-09-844-988-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δō
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-844-988-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 5, Application US/09844988 Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE: (206) 622-
TELEFAX: (206) 682-61
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDPREFIVTDMFQAAE 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQE----ALFQGGD 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158 FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62 DVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTMARE: PETENTIAL Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,988
FILING DATE: 26-Apr-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION: NAME: Maki, David J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: U5/09/844,988
FILING DATE: 26-Apr-2001
CLASSIFICATION: -Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE DESCRIPTION: SEQ ID NO: 3:
                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 08/910,820 FILING DATE: 1997-08-13
                                                                                                                                                                                                                               CITY: Seattle
STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: amino acid
                                                                                                                                                                                            COUNTRY: USA
ZIP: 98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 282 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                              Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhu, Hengyi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21.5%;
                                                                                                                                                                                                                                                                                                                                                                                                        Brion W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1154; DB 9;
Pred. No. 1.9e-90;
3; Mismatches 8;
                                                                                                                                                                                                                                                                             701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 282;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1:
```

```
Вb
                                                                                                                                                       Š
                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE DESCRIPTION: SEQ ID NO: 5: US-09-844-988-5
Search completed: May 20, Job time: 163.01 secs
                                                                밁
                                                                                          Q
                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                               Query Match 21.5%;
Best Local Similarity 93.6%;
Matches 218; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
                                                                                                                         182 RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSDPREFIVTDMFQAAE 234
                                                                                                                                                                                      38 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                    2 SPILGYWKIKGLYQPTRILLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 08/910,820
FILING DATE: 1997-08-13
ATTORNEY_AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE_DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
                                                                             RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQE----ALFQGGD 266
                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 282 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (206) 68
                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                               inear
                2003, 12:02:26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         622-4900
                                                                                                                                                                                                                                                                                                                   3; Mismatches
                                                                                                                                                                                                                                                                                                                              Score 1154; DB 9;
Pred. No. 1.9e-90;
                                                                                                                                                                                                                                                                                                                                             DB 9;
                                                                                                                                                                                                                                                                                                                                             Length 282;
                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                   97
```

<u>ب</u>

```
Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.
1398.5
1398.5
1140
1140
1140
1140
985
985
489.5
489.5
489.5
489.5
485.5
485.5
485.5
481.5
476.5
476.5
476.5
476.5
476.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
473.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       seq length:
seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-081-408-20
5357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  May 20, 2003, 11:09:54; Search time 38.5066 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gapop 10.0 , Gapext 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MDWLRNLLFLMAAAQSINAA.....QAAACAPDLPAFSHGGFSHN 998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            283224 segs, 96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIR_73:*
       GenCore version 5.1.5
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pir1: *
pir2: *
pir3: *
pir4: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length DB
                                                                                                                                                                                                                                                                                                                               A45556
A45523
A48388
S33860
A29794
S32425
S65674
A39375
A47486
JX0095
                                                                                                                                                              A46048
A29036
B29231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (without alignments)
2491.578 Million cell updates/sec
                                                                                                                                                              amine oxidase (cop
glutathione transf
glutathione s-tran
glutathione s-tran
glutathione transf
                          glutathione
amine oxidas
                                                                    glutathione
glutathione
                                                                                                                    glutathione transf
mu-class glutathio
                                                                                                                                        glutathione
glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     oxidase
                                                                         transf
                                                                                                 transf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Species: Homo sapiens (man)
C;Date: 13-Mar-1997 #sequence_revision 13-Mar-1997 #text_change 18-Feb-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            amine oxidase (copper-containing) (EC 1.4.3.6) AOC2 precursor -
                                                                                                 밁
                                                                                                                                          Ş
                                                                                                                                                                                         밁
                                                                                                                                                                                                                                     ğ
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                  밁
```

43 260.5 44 253 45 251.5	39- 40 305 41 300 42 295		33 363 34 357.5 35 353.5	
4.9 4.7 4.7	ა. ა. ა. ი. 70	6.01 6.01	თ თ თ თ . 7 მ	7.4 7.0 6.9
142 210 208	674 759 660 692	638 674 687	648 756	219 684 660
222	0000	222	NNN	222
S17462 S71958 S41933	C44239 E84854 AH2234 S04963	JC2139 JC7251 T47403	A48646 T48139 G71412	S50146 A56102 G90330
giutathione transf glutathione transf glutathione transf	amine oxidase (cop probable copper am copper amine oxida amine oxidase (cop	phenylethylamine o amine oxidase (cop amine oxidase-lke	amine oxidase (cop copper amine oxida probable amine oxi	major allergen Dp1 amine oxidase (cop amine oxidase (cop

ALIGNMENTS

mon

C; Accession: JC5234
R; Zhang, X.; McIntire, W.S.
Gene 179, 279-286, 1996
A;Title: Cloning and sequencing of a copper-containing,
A; Reference number: JC5234; MUID:97128319; PMID:8972912
A; Contents: placenta
A; Accession: JC5234
A; Accession: JC5234 A;Cross-references: GDB:4562632
A;Map position: 17q21-17q21
C;Superfamily: amiloride-binding protein
C;Keywords: copper; metalloprotein; oxidoreductase; quinoprotein; topaquinone
C;Keywords: signal sequence #status predicted <\$TS>
F;1-19/Domain: signal sequence #status predicted <\$TS>
F;20-763/product: amine oxidase (copper containing) #status predicted
F;4471/Modified site: topaquinone (Tyr) #status predicted A;Cross-references: GB:U39447; NID:g1399031; PIDN:AAC50919.1; PID:g1399032 C;Comment: This enzyme catalyzes the oxidation of primary amines to the correspondi Cu(II) and 1 molecule of covalently-bound topa quinone. It also can scavenge circu C;Genetics: A;Gene: GDB:AOC2; DAO2 A; Molecule type: mRNA A; Residues: 1-763 <ZHA> A; Status: preliminary Query Match
Best Local Similarity
Matches 735; Conserv 148 323 263 383 88 28 QARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLP 382 QARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLP LVTMTTAPRGLOSGDRATWEGLYYNISGAGEFLHHVGLELLVNHKALDPARWTIQKVEYQ 502 HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN 442 LVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQ HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN Conservative 74.18; 99.98; Score 3967; DB 2; Length 76 Pred. No. 3.5e-293; 1; Mismatches 0; Indels topa quinone-containing 0 Gaps 562 267 207 147 327 0

```
amine oxidase (copper-containing) (EC 1.4.3.6), serum, prect C; Species; Bos primigenius taurus (cattle) C; Date: 09-Sep-1994 #sequence_revision 06-Feb-1995 #text_ch; C; Accession: A54411; B38081; A48242; S65408 R; Mu, D.; Medzihradszky, K.F.; Adams, G.W.; Mayer, P.; Hines J. Biol. Chem. 269, 9926-9932, 1994 A; Title: Primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian cellular and selection of the primary structures for a mammalian c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δō
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
A; Molecule type: protein
A; Residues: 463-469, 'X', 471-487 <DEB>
C; Superfamily: amiloride-binding protein
C; Keywords: copper; glycoprotein; oxidoreductase;
F; 1-16/Domain: signal sequence #status predicted <
                                                                                                                           A;Reference number: S65408; MUID:96203913; PMID:8620899
A;Accession: S65408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
A54411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                              Eur. J. Blochem. 237, 93-99
A; Title: Half-of-the-sites
                                                                                                                                                                                                                     A; Molecule type: protein
A; Residues: 468-472 < JANY
R; de Blase, D; Agostinelli, E; c
Eur. J. Blochem. 237, 93-99, 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: protein
A; Residues: 463-465, 7467-473, 7475-485 <MU2>
R; Janes, S. M.; Mu, D.; Wemmer, D.; Smith, A.J.; Kaur,
Science 248, 981-987, 1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Reference number: A38081; MUID:92235001; PA;Accession: B38081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: GB:S69583; NID:g546215; PIDN:AAB30397.1; R;Mu, D.; Janes, S.M.; Smith, A.J.; Brown, D.E.; Dooley, D.M. J. Biol. Chem. 267, 7979-7982, 1992
A;Title: Tyrosine codon corresponds to topa quinone at the ac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                            A; Title: A new redox cofacto
A; Reference number: A48242;
                                                                                                                                                                                                                                                                                                                                                               A; Accession: A48242
                                                                                                                                                                                                                                                                                                                                                                                               ;Title: A new redox cofactor in eukaryotic;Reference number: A48242; MUID:90260648; I
                                                                                                                                                                                                                                                                                                                                        Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAWTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AEDIPNTYTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ERYQLAYTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  998
                                                                                                                                                                                                                                                       de Matteis,
                                                                                                                                                                                                                                                                                                                                                                                            c enzymes: 6-hydroxydopa
PMID:2111581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          quinone at
PMID:1569055
                                                                                                                                                                                                                                                    G
.
                                                                                                                                                                                                                                                          Mondovi,
     quinoprotein;
<SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S.; Maltby,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hines,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            serum
                                                                                                                                                                                                                                                          ₿.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; PID:g546216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      active
                                                                                                                                                                                                   oxidase.
                                                                                                                                                                                                                                                          Morpurgo,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W.M.; Burlingame,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      copper amine
                            topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-Feb-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      site of
                                                                                                                                                                                                                                                                                                                                                                                                                           at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bovine
                                                                                                                                                                                                Reactivity
                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Burlingame,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ч
                                                                                                                                                                                                                                                                                                                                                                                                                           active
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      copper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            oxidase
                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                              site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A.L.;
                                                                                                                                                                                                   chen
                                                                                                                                                                                                                                                                                                                                                                                                                              o
```

```
F;17-762/Product: amine oxidase (copper-containing) *status predicted F;136,231,665/Binding site: carbohydrate (Asn) (covalent) *status prec F;470/Modified site: topaquinone (Tyr) *status experimental
gg.
         ν
..
      Length
                                                                                                 predicted
```

```
RESULT 3:

$34556

$34656

anine oxidase (copper-containing) (EC 1.4.3.6), kidney, pr. anine oxidase (copper-containing) (EC 1.4.3.6), kidney, pr. anine oxidase (copper-containing protein, short form N; Contains: amiloride-binding protein, short form C; Species: Rattus norvegicus (Norway rat)

C; Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_C; C; Accession: $36847; $36848; I51904; $34656; $34657

C; Accession: $36847; $36848; I51904; $34656; $34657

R; Linguegila, E.; Renard, S.; Voilley, N.; Waldmann, R.; C

Eur. J. Biochem. 216, 679-687, 1993

A; Title: Molecular cloning and functional expression of di
A; Reference number: $36847; MUID:93387321; PMID:8375402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                γ
                                                                                                                                                                                                                 δÕ
                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     263
                                                                                                                                                                                                                                                 679
                                                                                                                                                                                                                                                                          915
                                                                                                                                                                                                                                                                                                   619
                                                                                                                                                                                                                                                                                                                             855
                                                                                                                                                                                                                                                                                                                                                       559
                                                                                                                                                                                                                                                                                                                                                                                                           499
                                                                                                                                                                                                                                                                                                                                                                                                                                                              439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    139
                                                                                                                                                                                            739
                                                                                                                                                                                                                                                                                                                                                                                 795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GPRESVQGSRVASSLWTESFGLGAESGPRIEDVREQGERLVYEISLQEALAIYGGNSPAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EGGVGSEEGVGKQCHPSLPPRCPSRSPSDQPWTHPDQSQLFADLSREELTTVMSFLTQQL 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QGGDGGE----
                                                                                                                                                                                                                   ACLPOAAACAPDLPAFSHGGF
                                                                                                                                                                                                                                                                                                                 SMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                                                                                                                                                                                                      QRLQVTRKQLETEEQAAFPLGGASPRYLYLASKQSNKWGHPRGYRIQTVSFAGGPMPQNS
                                                                                                                                                                                                                                                                                                                                                                     QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                           LFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                              LRRHHSDFLSHYFGGVAQTVLVFRSVSTMLNYDYVWDMVFYPNGAIEVKLHATGYISSAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GPRFSVQGNRVASSLWTFSFGLGAFSGPRVFDVRFQGERLAYEISLQEAGAVYGGNTPAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FYKHRGRNLYTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GPDLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGGQPQPNVT
                                                                                                                                                                                                                                               AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL
                                                                                                                                                                                                                                                                                                   PMERAFSWGRYQLAITQRKETEPSSSSVFNQNDPWTPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                                            ACLPQAATCAPDLPVFSHGGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --PSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62.1%;
81.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                57;
                                                                                                                                                                                                                      995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 3326;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .9e-244;
                                                                      #text_change 18-Feb-2000
                                           ₽.;
                                                                                                                          precursor
                                           o
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                            974
                                                                                                                                                                                                                                                                                                     678
                                                                                                                                                                                                                                                                                                                              914
                                                                                                                                                                                                                                                                                                                                                         618
                                                                                                                                                                                                                                                                                                                                                                                  854
                                                                                                                                                                                                                                                                                                                                                                                                                                   794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     314
                                                                                                                                                                                                                                                                                                                                                                                                           558
                                                                                                                                                                                                                                                                                                                                                                                                                                                               498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            674
                                            Lazdunski,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۳.
```

different

molecular

torms

z

```
A;Status preliminary; translated from GB/EMBL/DDBJ
A;Status preliminary; translated from GB/EMBL/DDBJ
A;Nolecule type: mRNA
A;Residues: 530-586,'T',588-632 <VER>
A;Residues: 530-586,'T',588-632 <VER>
A;Ross-references: GB:570383; NID:9547214; PIDN:AAB31157.1; PID:9547215
A;Note: in Genbank entry S70383; release 116.0, the source is designated as Rattus sp. (C;Superfamily: amiloride-binding protein
C;Superfamily: amiloride-binding protein
C;Reywords: alternative initiators; oxidoreductase
F;1-746/Product: amine oxidase (copper-containing), kidney, precursor #status predicted
F;529-746/Product: amiloride-binding protein short form #status predicted <SHRT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R:Verity, K.; Fuller, P.J.

Am. J. Physiol. 266, C1505-C1512, 1994

A;Title: Isolation of a rat amiloride-binding protein cDNA clone:
A;Reference number: I51904; MUID:94295632; PMID:8023885

A;Accession: I51904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: mRNA
A; Residues: 529-746 <LIN2>
A; Cross-references: EMBL: X73912; NID: g395066; PIDN: CAA52117.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Accession: S36847
A;Molecule type: mRNA
A;Molecule type: mRNA
A;Residues: 1-746 <LIN1>
A;Cross-references: EMBL:X73911; NID:g395064; PIDN:CAA52116.1; PID:g395065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: S36848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                          Ş
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                    õ
                                                                                                                                   밁
Ş
                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                411
                                                                                                                                                                                                                        496
                                                                                                                                                                                                                                                                                                              436
                                                                                                                                                                                                                                                                                                                                                                                                  376
                                                                                                                                                                                                                                                                                                                                                                                                                                           629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      291 QSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDR 350
  925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQE 410
                                                                                 QLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFLHIPHAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNV 523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Y----DLLYH-TLKRATMPLHQFFLDTTGFSFLGCDDRCLTFTDVAPRGVASGQRRSWFI 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YLDIDQMIFNRELPQASGLLHH------CCFYKHRGRNLVTMTTAPRGLQSGDRATWFG 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GRKGPNREARAVIFFGAODYPNVTEFAVGPLPRPYYIRALS-PRPGHHLSWSSRPISTAE 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KARVFADLSPQEIKAVHSFLMNREELGLOPSKEPTLAKNSVFLIEMLLPKKKHVLKFLDE 88
                                                                                                                                                                                                                                                   FYAGLKGYVLVLRTTSTVYNYDYIWDFIFYSNGVMEAKMHATGYVHATFYTPEGLRHGTR
                                                                                                                                                                                                                                                                                                                                                     YFGGLAETYLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYGNQ
                                                                                                                                                                                                                                                                                                                                                                                                VTHELAPGIDCPETATFLDAFHYYDSDGPVHYPHALCLFEMPTGVPLRRHFNSNFKGGFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GWSFSYRLRSSSGLQIFNVLFGGERVAYEVSVQEAVALYGGHTPAGMQTKYIDVGWGLGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGK 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VYLEDPLPNGTE----KPPLFSSYKPRGEFHTPVNVAGPHVVQPSGPRYKLEGNTVLYG 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VLIPD---NGTGGSWSLKSPV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VQRYVE--GYFLHPTGLEILLDHGSTDVQDWRVEQLWYNGKFYNNPEELARKYAVGEVDT
  DIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACA
                                               PLAYTKYRESERYSSSLYNQNDPWDPPVVFEEFLRNNENIEDEDLVAWVTVGFLHIPHSE
                                                                                                                                   MEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERY
                                                                                                                                                                                                                                                                                                                                                                                                                                       YTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS---H
                                                                                                                                                                                                                     LQTHLLGNIHTHLVHYRVDMDVAGTKNSFQTLTMKLENLTNPWSPSHSLVQPTLEQTQYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    294;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    127; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1398.5;
Pred. No. 7.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PPGPAPPLQFYPQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1e-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    266; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PID: 939506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tissue distribution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                      615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   260
                                                                                                                                                                                                                            555
                                                                                                                                                                                                                                                                                                                                                                                                  435
                                                                                                                                                                                                                                                                                                                                                                                                                                                685
                                                                                                                                                                                                                                                                                                                495
                                                                                                                                                                                 865
                                                                                                                                                                                                                                                                   805
```

```
Biochem. Genet. 33, 261-268, 1995
A, Title: cDNA sequences of variant forms of human placenta A; Reference number: I38708; MUID:96113540; PMID:8595053
A, Accession: I38708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         amine oxidase (copper-containing) (EC 1.4.3.6) ABP1 precursor - N;Alternate names: amiloride-binding protein; diamine oxidase; h C;Species: Homo sapiens (man) C;Date: 07-Jul-1995 #sequence revision 07-Tul-1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A:Cross-references: EMBL:X78212; NID:g463242; PIDN:CAA55046.1; PID:g463243 R:Novotny, W.F.; Chassande, O.; Baker, M.; Lazdunski, M.; Barbry, P. J. Biol. Chem. 269, 9921-9925, 1994 A;Title: Diamine oxidase is the amiloride-binding protein and is inhibited A:Reference number: A54410; MUID:94193685; PMID:8144586 A;Accession: A54410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C;Accession: A54053; A54410; I38708; A38276; S42495
R;Chassande, O.; Renard, S.; Barbry, P.; Lazdunski, M.
J. Biol. Chem. 269, 14484-14489, 1994
A;Title: The human gene for diamine oxidase, an amiloride A;Reference number: A54053; MUID:94237856; PMID:8182053
A;Accession: A54053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A:Status: preliminary
A:Molecule type: mRNA
A;Residues: 1-265; RCLGARGMTAQRSRPSSPPQAPRDFPQPHPCERPPLGPAPRPSLQAGGQRCALRRLELCLPV'
A;Cross-references: GB:M55602; GB:M36335; NID:g387655; PIDN:AAA58358.1; PID:g17796;
A;Note: this sequence has been corrected in reference A54053
C:Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: EMBL:Ul1862; NID:g533535; PIDN:AAC50270.1; PID:g533536 R;Barbry, P.; Champe, M.; Chassande, O.; Munemitsu, S.; Champigny, G.; Ling Proc. Natl. Acad. Sci. U.S.A. 87, 7347-7351, 1990 A;Title: Human kidney amiloride-binding protein: cDNA structure and functional A;Reference number: A38276; MUID:91017502; PMID:2217167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Note: sequence extracted from NCBI backbone (NCBIP:146046) R; Zhang, X.; Kim, J.; McIntire, W.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: protein
A; Residues: 20-27; A', 29-39 < NOV>
A; Cross-references: PIDN: AAB30395; 1; PID: 9546213
A; Experimental source: placenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: DNA
A; Residues: 1-751 <CHA>
                                                                                                                                                                                                                           A, Description: oxidation of putrescine and histamine C; Superfamily: amiloride-binding protein C; Keywords: homodimer; oxidoreductase; quinoprotein; topa F;1-19/Domain: signal sequence #status predicted <SIG>F;461/Modified site: topaquinone (Tyr) #status predicted
                                                                                                                                                                                                                                                                                                                                                                       A; Introns: 524/1; C; Function:
                                                                                                                                                                                                                                                                                                                                                                                                                            A; Cross-references: GDB:127105;
A; Map position: 7q31-7q32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Reference number: A; Accession: A38276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: mRNA
A; Residues: 1-331, 'F', 333-751 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Status: preliminary; translated from GB/EMBL/DDBJ
밁
                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Gene: GDB: ABP1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;Species: Homo sapiens (man);Date: 07-Jul-1995 #text_change 18-Feb-2000;Date: 07-Jul-1995 #sequence_revision 07-Jul-1995 #text_change 18-Feb-2000
                                                                                                                                              Query Match
Best Local Similarity
  23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PDLPAFSHGG 994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAA 344
     PGTLPRKAGVFSDLSNQELKAVHSFLWSKKELRLQPSSTTTMAKNTVFLIEMLLPKKYHV
                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                        619/2;
                                                                                                                                                                                                                                                                                                                                                                                                           663/3
                                                                                                                                              26.0%;
                                                                                                                      124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                OMIM: 104610
                                                                                                                                           Score 1394;
Pred. No. 1
                                                                                                                      Mismatches
                                                                                                                                        ; DB 2;
l.6e-97;
                                                                                                                         281;
                                                                                                                                                                                                                                                                                          topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oxidase; histaminase
                                                                                                                                                                         Length
                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    binding protein. Molecula
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           is inhibited
                                                                                                                         38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          functional exp
                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lingueglia,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        λd
                                                                                                                            11;
```

Š

345

LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRR

```
glutathione transferase (EC 2.5.1.18) - fluke (Schistosoma japonicum) (fragm C.) Species: Schistosoma japonicum
C.) Species: Schistosoma japonicum
C.) Date: 25-Oct-1987 *sequence_revision 30-Sep-1989 *text_change 03-Feb-1994
C.) Accession: A94139; A26484; A28315
R.; Smith, D.B.; Davern, K.M.; Board, P.G.; Tiu, W.U.; Garcia, E.G.; Mitchell, Proc. Natl. Acad. Sci. U.S.A. 83, 8703-8707, 1986
A.; Title: Mr 26,000 antigen of Schistosoma japonicum recognized by resistant A; Reference number: A94139; MUID:87041520; PMID:3095841
A.; Accession: A94139
A.; Molecule type: mRNA
A.; Residues: 1-219 <SMI>
R.; Smith, D.B.; Davern, K.M.; Board, P.G.; Tiu, W.U.; Garcia, E.G.; Mitchell, Proc. Natl. Acad. Sci. U.S.A. 84, 6541, 1987
A. Reference number: A04181
                                                                                                                                                                                               Proc. Natl. Acad. Sci. U.S
A; Reference number: A94181
A; Contents: annotation; rev
C; Superfamily: glutathione
C; Keywords: transferase
         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                   Query Match
Best Local;
                                                                                                                                                                                                                             Superfamily: glutathione transferase
                                                 Local 213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 405
39 PILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FKGGFNFYAGLKGQVLVLRTTSTVYNYDYIWDFIFYPNGVMEAKMHATGYVHATFYTPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNGGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAWTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RRSWLIIQRYVE--GYFLHPTGLELLVDHGSTDAGHWAVEQVWYNGKFYGSPEELARKYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | | ||:| | | || ||::||| | ||::| | | ||:: | | | ||:: | | | ||:: | | | ||:: | | | ||:: | | | ||:: | | | ||:: | | ||:: | | ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||:: ||: ||:: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EDRDCSMP-PPFSYNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QAAACAPDLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ITWARYPLAYTKYRESELCSSSIYHQNDPWHPPVVFEQFLHNNENIENEDLVAWVTVGFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFL 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQV 799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAVLYGGWSFAFRLRSSSGLQVLNVHFGGERIAYEVSVQEAVALYGGHTPAGMQTKYLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DGEVDVVVLEDPLPGGKGHDSTEEPPLFSSHKPRGDFPSPIHVSGPRLVQPHGPRFRLEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGLVNVVLIPDNGTGGSWSLKSPVPP------GPAP-----PLQFYPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HIPHSEDIPNTATPGNSVGFLLRPFNFFPEDPSLASRDTVIV-WPRDNGPNYVQ--RWIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EQTQYSWERQAAFRFKRKLPKYLLFTSPQENPWGHKRSYRLQIHSMADQVLPPGWQEEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GWGLGSVTHELAPGIDCPETATFLDTFHYYDADDPVHYPRALCLFEMPTGVPLRRHFNSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFE 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PISTAEY----ALLYHTLQEATKPLHQFFLNTTGFSFQDCHDRCLAFTDVAPRGVASGQ 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PVLFQEYLDIDQMIFNRELPQASGLLHH------CCFYKHRGRNLVTMTTAPRGLQSGD 457
                                                                                                   Similarity
                                                                  Conservative
                                                                                                                                                                                                                                                              revision
                                                                                            21.3%;
98.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     994
                                                                                                                                                                                                                                                              to residues
                                                                  0,
                                                                                            Score 1140;
Pred. No. 4
                                                              Mismatches
                                                                                                                                                                                                                                                              210-219
                                                                                            DB 2;
.4e-79;
                                                                  w
                                                                                                                          Length
                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        japonicum) (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E.G.; Mitchell,
                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  resistant WEHI 129/J
                                                                                                                                                                                                                                                                                                                                                       Mitchell,
                                                           Gaps
   98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             G.F.
                                                                                                                                                                                                                                                                                                                                                       Ω
                                                           0,
```

```
A;Cross-references: GB:M31106; NID:g161004; PIDN:AAA29888.1; R;Henkle, K.J.; Davern, K.M.; Wright, M.D.; Ramos, A.J.; Mitc Mol. Biochem. Parasitol. 40, 23-34, 1990
A;Title: Comparison of the cloned genes of the 26- and 28-kil A;Reference number: A44941; MUID:90271935; PMID:1693415
                                                                                                                                                                                                                                                                        RESULT 7
A45523
Quantitatione transferase (EC 2.5.1.18) - fluke (Schistosoma mansoni)
C:Species: Schistosoma mansoni
C:Date: 03-Jun-1993 *sequence_revision 03-Jun-1993 *text_change 18-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Note:
C; Superf
                                                                                                    A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-218 <TRO>
                                                                                                                                                                             R;Trottein, F.; Kieny, M.P.; Verwaerde, C.; Torpier, G.; Pierce, Mol. Biochem. Parasitol. 41, 35-44, 1990
A;Title: Molecular cloning and tissue distribution of a 26-kilode A;Reference number: A45523; MUID:90348716; PMID:2385266
                                                                                                                                                                                                                                           C; Accession: A45523; A44941 R; Trottein, F.; Kieny, M.P.
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mol. Biochem. Parasitol. 49, 177-179, 1991
A;Title: Another 26-Kilodalton glutathione S-transferase of A;Reference number: A45556; MUID:92131046; PMID:1775156
A;Accession: A45556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C; Accession: A45556
R; Wright, M.D.; Harrison,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            glutathione S-transferase - fluke (Schistosoma mansoni)
C;Species: Schistosoma mansoni
C;Datc: 22-Apr-1993 *sequence_revision 18-Nov-1994 *text_change 03-May-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                               A; Accession: A45523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Status: preliminary; not compared with conceptual translation A; Molecule type; nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Residues: 1-218 <WRI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Superfamily: glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence extracted from NCBI backbone (NCBIP:77814)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APKLGYWKIKGLVQPTRLLLEYLGERYEERLYDRNDGDVWRNEKFKLGLDFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                         RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FLNQLPGMLKMFEDRLSHNTYLNGDKVTHPDFMLYDALDVVLYMDPKCLDNFPKLISFKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKR 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDF 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVKLTQSMAILRYIADKHNMLGGCPKERAEISMLEGAILDIRYGVSRIAYNKEFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R.A.; Melder, A.M.; Newport, G.R.; Mitchell,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 985; DB 2;
Pred. No. 2.7e-67
9; Mismatches 1
    the 26\text{-} and 28\text{-}kilodalton glutathione PMID:1693415
                                                                                                                                                                                                                                                                                                                                                                                                                         218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18;
                                                                                                                                                                                                                                                                                #text_change 18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                26-kilodalton Schistosoma mar
                                                           Mitchell,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Schistosoma mansoni.
                                                             PID:g552241
chell, G.F.
                                                                                                                                                                                                                                         R.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             G.F.
                                                                                                                                                                                                                                         Balloul,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                         J.M.;
                      s-tr
```

```
A;Accession: A44941
A;Status: preliminary
A;Molecule type; mRNA
A;Residues: 8-218 <HEN>
A;Cross-references: GB:M26914; GB:M26913; NID:g161006; PIDN:AAA29889.1; PID:g161007
C:Superfamily: glutathione transferase
C;Keywords: transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                glutathione S-transferase - liver fluke (fragment) C;Species: Rasciola hepatica (liver fluke) C;Date: 19-Nov-1993 #sequence_revision 18-Nov-1994 #text_change C;Accession: A48388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;Muro, A.; Rodriguez-Medina, J.R.; Hillyer, G.V. Am. J. Trop. Med. Hyg. 48, 457-463, 1993
A;Title: Sequence analysis of a Fasciola hepatica glutathione A;Reference number: A48388; MUID:93228188; PMID:7682383
A;Accession: A48388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: preliminary
A;Molecule type: nucleic acid
A;Residues: 1-209 <MUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                        RESULT
S33860
                                                                                                                                                                                                                  Вр
                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Experimental source: Puerto Rico
glutathione transferase (EC 2.5.1.18) mul - N;Alternate names: glutathione transferase TC;Species: Mus musculus /howse moveco
                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Note: sequence extracted from NCBI backbone (NCBIN:129138, NCBIP:129139)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                       106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
nes 174; Conserv
                                                                                                                                         181
                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                          166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38 SPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         госат
                                                                                                                                                                                                                                                                                                                                                                            Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CIEDLPQIKNYLNSSRYIKWPLQGWDATFGGGDTPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DFKLTQSMAIIRYIADKHNMLGACPKERAEISMLEGAVLDIRMGVLRIAYNKEYETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APKFGYWKVKGLVQPTRLLLEHLEETYEERAYDRNEIDAWSNDKFKLGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLNKLPGRLKMFEDRLSNKTYLNGNCVTHPDFMLYDALDVVLYMDSQCLNEFPKLVSFKK 181
                                                                                                                                                                                                                                                                                                 IKGLYQPTRILLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVKLTQSM 105
                                                                                                                                                                                                                    LKMWSDFLGDRHYLTGSTVSHVDFMVYEALDCIRYLAPQCLEDFPKLKEFKSRIEDLPKI
                                                                                                                                                                                                                                                      LKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIEAIPQI 225
                                                                                                                                                                                                                                                                                                                                     AIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLPEM 165
                                                                                                                                                                           DKYLKSSKYIAWPLOGWOATFGGGDHPP 253
                                                                                                                                                                                                                                                                                                                                                                            IRGLQQPVRLLLEYLGEEYEEHLYGRDDREKWFGDKFNMGLDLPNLPYYIDDKCKLTQSV 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                      121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17.2%; Score 922; DB 2; 80.2%; Pred. No. 1.6e-62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12.4%; Score 663; 58.2%; Pred. No. 7
                        transferase major
                                                                                                                                                                                                                                                                                                                                                                                                                                                      32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                            mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
1.6e-43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28;
                          chain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                          glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                          transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA clone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

밁

4

Q

40 ILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYY 94

63

ILGYWNVRGLTHPIRWLLEYTDSSYDEKRYTMGDAPDFDRSQWLNEKFKLGLDFPNLPYL IDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETL

S

95

```
R:Townsend, A.J.; Goldsmith, M.E.; Pickett, C.B.; Cowan, J. Biol. Chem. 264, 21882-21990, 1989
A;Title: Isolation, characterization, and expression in A;Reference number: A34159; MUID:90094327; PMID:2689439 A;Accession: A34159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Reinhart, J.; Pearson, W.R. Arch. Blochem. Blophys. 303, 383-393, 1993
A;Title: The structure of two murine class-mu glutathione transferase genes A;Reference number: S33860; MUID:93290350; PMID:8512323
A;Accession: S33860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross references: GB.J03952; NID:g193687; PIDN:AAA37747.1; PID:g309278 R;Pearson, W.R.; Windle, J.J.; Morrow, J.F.; Benson, A.M.; Talalay, P. J. Biol. Chem. 258, 2052-2062, 1983 A;Title: Increased synthesis of glutathione S-transferases in response to A;Reference number: A92411; MUID:83109018; PMID:6822548 A;Accession: A20831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: GB:J04632; NID:g193547; PIDN:AAA37705.1; PID:g309260 R;Pearson, W.R.; Reinhart, J.; Sisk, S.C.; Anderson, K.S.; Adler, P.N. J. Biol. Chem. 263, 13324-13332, 1988 A;Title: Tissue-specific induction of murine glutathione transferase mRNJ A;Reference number: A92668; MUID:88330838; PMID:3417659 A;Contents: clone pGT 875 A;Accession: A28946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Accession -- Protein
A;Molecule type: protein
A;Residues: 2-7,'X',8-13,'X',15-23,'X',25
A;Residues: 2-7,'X',8-13,'X',15-23,'X',25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: protein
A; Residues: 2-7, X', B-13, X',15-23,'X',25,'XX',28,'N',30-31,'X',33,'X',35-39,'M',41
A; Residues: 2-7, X', B-13,'X',15-23,'X',25,'XX',28,'N',30-31,'X',33,'X',35-39,'M',41
R; Mannervik, B; Alin, P.; Guthenberg, C.; Jensson, H.; Tahir, M.K.; Warholm, M.; L.
Proc. Natl. Acad. Sci. U.S.A. 82, 7202-7206, 1985
Proc. Natl. Acad. Sci. U.S.A. 82, 7202-7206, 1985
A; Title: Identification of three classes of cytosolic glutathione transferase common A; Reference number: A24735; MUID:86042634; PMID:3864155
A; Accession: I24735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: mRNA
A; Residues: 1-218 <TOW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Molecule type: DNA
A;Residues: 1-218 <REI>
                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: protein
A; Residues: 2-36 <ARY>
A; Residues: C.L.; Dong, J.H.; Roebuck, B.D.; Chisari, F.V.; Montali, J.A.;
R; Fernandes, C.L.; Dong, J.H.; Roebuck, B.D.; Chisari, F.V.; Montali, J.A.;
Arch. Biochem. Biophys. 331, 104-116, 1996
A; Title: Elevations of hepatic quinone reductase, glutathione, and alpha- and A; Reference number: S71311; MUID:96268466; PMID:8660689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R; Hayes, J.D.; Kerr, L.A.; Peacock, S.D.; Cronshaw, A.D.; McLellan Biochem. J. 277, 501-512, 1991
A; Title: Hepatic glutathione S-transferases in mice fed on a diet addent elution of the glutathione-Sepharose affinity matrix.
A; Reference number: S16933; MUID:91315425; PMID:1859377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: mRNA
A; Residues: 2-218 <PEA>
                                                                                                                    A;Introns: 12/3; 38/1; 59/3; 87/1; 120/3; 152/3; 189/3
C;Superfamily: glutathione transferase
C;Keywords: dimer; transferase
F;2-218/Product: glutathione transferase mul #status experimental <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Reference number: A; Accession: S16933
                                                                                                                                                                                                                                                                                                                      A; Molecule type: pi
A; Residues: 97-108
                                                                                                                                                                                                                                                                                                                                                                            A; Reference number: A; Accession: S71312
                                                                                                                                                                                                                                                                                                               A; Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Date: 08-Dec-1993 #sequence_revision 07-Oct-1994 #text_change 18-Jun-1999;Accession: S33860; A34159; A28946; A20831; I24735; S16933; S71312
                                   Local
      91;
                                   Similarity 44.4%;
      Conservative
                                                                                                                                                                                                                                                                                                                                                   protein
                                                                9.18;
         39;
                                      Pred. No. 1
                                                                Score 489.5;
         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <MAN>
Cronshaw, A.D.; McLellan,
1.3e-29;
70;
                                                                   DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  K.H.
            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transferase mRNAs
                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           co11
                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      þу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           coordin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Schmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      butyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ō
```

```
A;Accession: 52/11
A;Molecule type: protein
A;Molecule type: protein
A;Residues: 2-20,83-86,'X',88-96;109-115,'X',117-122 <KAT>
A;Residues: 2-20,83-86,'X',88-96;109-115,'X',117-122 <KAT>
A;Perichh. J.C.; Huang, S.C.; Chen, W.L.; Lai, Y.C.; Tam, M.F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  glutathione transferase (EC 2.5.1.18) class mu chain 3 - rat N;Alternate names: glutathione S-transferase Ybl; ligandin C:Species: Rattus norvegicus (Norway rat) C;Date: 28-Aug-1989 #sequence_revision 28-Aug-1989 #text_change 18-Jun-1999 C;Date: 28-Aug-1989 #sequence_revision 28-Aug-1989 #text_change 18-Jun-1999 C;Accession: A29794, A35510; A24085; B61004; F24735; A33397; S27111; S17167; A26187 R;Chang, C.; Saltzman, A.G.; Sorensen, N.S.; Hipakka, R.A.; Liao, S. J. Biol. Chem. 262, 11901-11903, 1987 A;Title: Identification of glutathione S-transferase Yb-1 mRNA as the androgen-repressed A;Beference number: A29794; MUID:87308179; PMID:3040722
                                                                                                                                       A:Molecule type: protein
A:Residues: 2-21;212-218 <HSI>
R:Katusz, R.M.; Bono, B.; Colman, R.F.
R:Katusz, R.M.; Bono, B.; Colman, R.F.
Arch. Biochem. Biophys. 298, 667-677, 1992
A:Title: Identification of Tyr(115) labeled |
A:Reference number: S27111; MUID:93037509; P.
                                                                                                                                                                                                                                                                                                        R:Hsieh, J.C.; Liu, L.F.; Chen, W.L.; Tam, M.F.
Blochem. Blophys. Res. Commun. 162, 1147-1154, 1989
A;Title: Expression of Yb-1 glutathione S-transferase using A;Reference number: A33397; MUID:89350924; PMID:2669745
A;Accession: A33397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;ACCESSACH.
A;ACCESSACH.
A;Residues: 1-218 <CHA>
A;Residues: 1-218 <CHA>
A;Cross.references: GB.J02810; NID:9204514; PIDN:AAA41293.1;
A;Cross.references: GB.; Tu, C.P.D.
                                                                                                                       A; Reference number: A; Accession: S27111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Molecule type: protein
A;Residues: 2-26 <CH29
A;Residues: 2-27
A;Residues: 2-28
A;Residues: 2-26 <CH29
R;Mannervik, B.; Alin, P.; Guthenberg, C.; Jensson, H.; Tahir, M.K.;
Proc. Natl. Acad. Sci. U.S.A. 82, 7202-7206, 1985
A;Title: Identification of three classes of cytosolic glutathione tra
A;Reference number: A24735; MUID:86042634; PMID:3864155
A;Accession: F24735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Electrophoresis 11, 589-593, 1990
A;Title: Identification of rat liver glutathione S-transferase
ical isoelectric focusing gel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Experimental source: clone pGTA/C44 R; Chang, L.H.; Hsieh, J.C.; Chen, W.L.; Tam,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Molecule type: mRNA
A;Residues: 1-198,'NC',201-218 <DIN>
A;Cross-references: GB:M11719; NID:g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Molecule type: mRNA
A;Residues: 1-218 <LAI>
A;Cross-references: GB:X04229; NID:g56337;
A;Cross-references: GB:X04229; NID:g56337;
A;Ding, G.J.F.; Lu, A.Y.H.; Pickett, C.B.
J. Biol. Chem. 260, 13268-13271, 1985
A;Reference number: A24085; MUID:86033768;
A;Accession: A24085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R; Lai, H.C.J.; Grove, G.; Tu, C.P.D. Nucleic Acids Res. 14, 6101-6114, 1986 A; Title: Cloning and sequence analysis of a A; Reference number: A25510; MUID:86312882; FA; Accession: A25510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: protein A; Residues: 2-20 <MAN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession: B61004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cal isoelectric focusing gel. Reference number: A61004; MU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FKKRIEAIPQIDKYLKSSKYIAWPL 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KPEFLKTIPEKMKLYSEFLGKRPWFAGDKVTYVDFLAYDILDQYRMFEPKCLDAFPNLRD 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MUID:91031411; PMID:2226415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NID: 9204502;
                                                                                                                                               by S-(4-bromo-2,3-dioxobuty1)glutathione PMID:1416995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PMID: 3840477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a cDNA for a rat
PMID:2875437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIDN: CAA27811.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIDN: AAA41287.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    liver glutathione
                                                                                                                                                                                                                                                                                                                                                       a baculovirus expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PID:g204503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID:g204515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             subunits
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Warholm,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S-transfer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             common
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Jorny
                                                                                                                                                                      ij
                                                                                                                                                                                                                                                                                                                                                    sy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             z
                                                                                                                                                                                                                                                                 γQ
                                                          Š
                                                                                                                 밁
                                                                                                                                                           δÃ
                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
```

```
A;Gene: GDB:GSTM4
A;Cross references: GDB:134191; OMIM:138333
A;Map position: 1p13.3-1p13.3
A;Introns: 12/3; 38/1; 59/3; 87/1; 120/3; 152/3; 189/3
C;Superfamily: glutathione transferase
C;Keywords: dimer; transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        glutathione transferase (EC 2.5.1.18) class mu, GST W; Alternate names: glutathione transferase mu4 C:Species: Homo sapiens (man) C:Date: 07-Apr-1994 #sequence_revision 07-Apr-1994 C:Accession: S32425; S29337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R:Zhong, S.; Spurr, N.K.; Hayes, J.D.; Wolf, Biochem. J. 291, 41-50, 1993
A;Title: Deduced amino acid sequence, gene s: A;Reference number: S32424; MUID:93228631; pl A;Accession: S32425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
S32425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Molecule type: DNA
A;Residues: 1-218 <ZHO>
A;Cross-references: EMBL:X68677; NID:g31934;
A;Note: the authors translated the codon AAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C;Superfamily: glutathione transferase
C;Keywords: dimer; transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: protein A; Residues: 2-218 <HS2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biochem. J. 278, 293-297, 1991
A;Title: Cysteine-86 is not needed for the A;Reference number: S17167; MUID:91354218;
A;Accession: S17167
A;Status: preliminary
                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
  215
                                           124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    184
                                                                              155 KVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVS 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                                                                                         64
                                                                                                                                                                95
                                                                                                                                                                                                                                            40 ILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERD----EGDKWRNKKFELGLEFPNLPYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                         4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
FKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                     ILGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGGAPDYDRSQWLNEKFKLGLDFPNLPYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETL
                                       KPEYLEELPTMMQHFSQFLGKRPWFVGDKITFVDFLAYDVLDLHRIFEPNCLDAFPNLKD
                                                                                                                       IDGAHKITQSNAILCYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDFEKL
                                                                                                                                                         IDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLARFEGLKKISAYMKSSRYLSTPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KPEFLKTIPEKMKLYSEFLGKRPWFAGDKVTYVDFLAYDILDQYHIFEPKCLDAFPNLKD 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IDGSRKITQSNAIMRYLARKHHLCGETEEERIRADIVENQVMDNRMQLIMLCYNPDFEKQ 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ILGYWNVRGLTHPIRLLLEYTDSSYEEKRYAMGDAPDYDRSQWLNEKFKLGLDFPNLPYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 44.4
91; Conservative
                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                             9.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.18;
                                                                                                                                                                                                                                                                                         38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39;
                                                                                                                                                                                                                                                                                   Score 486.5; DB 2;
Pred. No. 2.2e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 489.5; DB 2;
Pred. No. 1.3e-29;
9; Mismatches 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          structure and chromosomal location PMID:8471052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        enzymic activity of glutathione S-transfer PMID:1883338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PIDN:CAA48637.1;
for residue 182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSTM4 (version
                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      as Arg and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2) -
                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ū
                                                                                                                     123
                                                                                                                                                                                                     63
                                                                                                                                                                                                                                              94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of a
```

```
glutathione transferase (EC 2.5.1.18) class mu chain 7.8 C;Species: Oryctolagus cuniculus (domestic rabbit) C;Date: 28-Oct-1996 #sequence_revision 13-Mar-1997 #text_ch C;Accession: S65674; S30380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Primiano, T.; Novak, R.F. Arch. Blochem. Blophys. 301, 404-410, 1993
A;Title: purification and characterization of class mu glutathione S-transferase A;Reference number: S30380; MUID:93213177; PMID:8460949
A;A;Accession: S30380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R:Lee, S.H.; Lee, Y.S.; Han, J.S.; Kim, Y.S.; Koh, J.K. Arch. Biochem. Biophys. 318, 424-429, 1995
A;Title: Cloning and expression of a cDNA for Mu-Class Glutathione A;Reference number: S65674; MUID:95251394; PMID:7733673
A;Accession: S65674
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: protein
A; Residues: 2-21 <PRI>
C; Superfamily: glutathione tran
C; Keywords: dimer; transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Molecule type: mRNA
A;Residues: 1-218 <LEE>
A;Cross-references: EMBL:L23766; NID:g388198; PIDN:AAA69665.1; PID:g388199
A; Cross-references: GB:M63509; NID:g183300; PIDN:AAA60963.1; PID: A; Experimental source: myoblast A; Note: translation of initiator Met is not shown R; Singh, S.V.; Ahmad, H.; Kurosky, A.; Awasthil, Y.C. Arch. Blochem. Biophys. 264, 13-22, 1988 A; Title: Purification and characterization of unique glutathione A; Reference number: A90081; MUID:88280250; PMID:3395118 A; Accession: A28810 A; Molecule type: protein A; Residues: 2-7,'X',9-10,'X',12-14 <SIN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                         C;Species: Homo sapiens (man)
C;Date: 20-Mar-1992 #sequence_revision 06-Jan-1995 #text_change 21-Jul-2000
C;Date: 20-Mar-1992 #sequence_revision 06-Jan-1995 #text_change 21-Jul-2000
C;Accession: A39375; A28810; C35187; S13305; S14344
R;Vorachek, W.R.; Pearson, W.R.; Rule, G.S.
Proc. Natl. Acad. Sci. U.S.A. 88, 4443-4447, 1991
A;Title: Cloning, expression, and characterization of a class-mu glutathion: A;Reference number: A39375; MUID:91239584; PMID:2034681
A;Accession: A39375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  glutathione transferase (EC 2.5.1.18) mu-2 [validated] - human N; Alternate names: glutathione S-transferase GST4, muscle; glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                         A; Molecule type: mRNA
A; Residues: 1-218 < VOR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Superfamily: glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184 FISRFEGLEKISAYMKSSRFLPKPLYTRMAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   185 HVRFEGLPKISAYMKSSRFIRVPVFLKKATWTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            U,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSF 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DGTHKLTQSNAILRYLARKHGLCGETEEERIRVDILENQLMDNRFQLVNVCYSPDFEKLK 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LGYWDVRGLALPIRMLLEYTDTSYEEKKYTMGDAPNYDQSKWLSEKFTLGLDFPNLPYLI 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KKRIEAIPQIDKYLKSSKYIAWPLOGWQATFGG 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PEYLKGLPEKLQLYSQFLGSLPWFAGDKITFADFLYYDVLDQNRIFYPGCLDAFPNLKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9.1%; Score 485.5; DB 2
44.6%; Pred. No. 2.6e-29;
tive 37; Mismatches 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #text_change 18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                          class-mu glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rabbit
                                                                                                                                                                                                                                                        PID:g183301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218;
                                                                                                                         S-transferases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    from
                                                                                                                            from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       isozyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GST6
                                                                                                                            Ĕ
```

glutathione transferase (EC 2.5.1.18) class mu, GSTM4 (version 1)—C; Species: Homo sapiens (man)
C; Species: Homo sapiens (man)
C; Datte: 02-Jun-1995 #sequence_revision 02-Jun-1995 #text_change 18-J
C; Accession: A47486; B47486; S36782; 137438; S45685
C; Accession: A47486; B47486; S36782; 137438; S45685
R; Comstock, K.E.; Johnson, K.J.; Rifenbery, D.; Henner, W.D.
J. Biol. Chem. 268, 16958-16955, 1993

A47486 RESULT 14

A;Title: Isolation and analysis of the gene and cDNA for A;Reference number: A47486; MUID:93352467; PMID:8349586 A;Accession: A47486 A;Status: preliminary

human

ם class

glutathi

18-Jun-1999

A; Molecule type: DNA A; Residues: 1-218 <COM> A; Cross-references: GB:

GB:M96233

A; Status: preliminary A; Accession: B47486

```
R;Tsuchida, S.; Maki, T.; Sato, K.
J. Biol. Chem. 265, 7150-7157, 1990
A;Title: Purification and characterization of glutathione transferases with A;Reference number: A35187; MUID:90237002; PMID:2110160
A;Accession: C35187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Experimental source: skeletal muscle
R;Suzuki, T.; Shaw, D.C.; Board, P.G.
Biochem. J. 274, 405-408, 1991
A;Title: Purification and characterization of acidic glutathione S-transferase 6
A;Reference number: S14344; MUID:91174747; PMID:2006908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A:Experimental source: heart R;Hussey, A.J.; Kerr, L.A.; Cronshaw, A.D.; Harrison, D.J.; Hayes, J.D. Biochem. J. 273, 323-332, 1991
Biochem. J. 273, 323-332, 1991
A;Title: Variation in the expression of Mu-class glutathione S-transferase A;Reference number: S13305; MUID:91119559; PMID:1991033
A;Accession: S13305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: protein A; Residues: 2-10,'X',12-14,'X',16-17,'X',19-21,'XXXX' <TSU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Map position: lp13.3-lp13.3
C;Superfamily: glutathione transferase
C;Keywords: brain; cardiac muscle; heart; homodimer; skeletal muscle; tr:
E;2-218/Product: glutathione transferase mu-2 #status experimental <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Gene: GDB:GSTM2; GST4
A;Cross-references: GDB:128593; OMIM:138380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: protein
A; Residues: 2-29, 'K', 31 <SUZ>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A: Accession: S14344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: protein A; Residues: 2-25 < HUS>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Experimental source: brain
                                   Ş
                                                                                       밁
                                                                                                                                S
                                                                                                                                                                             В
                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                           Ş
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genetics:
                                                                                                                                                                                                                                                                                                                                                                 Matches
                                 216 KKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG 247
                                                                                       125
  185
                                                                                                                                    156
                                                                                                                                                                                                                          96
                                                                                                                                                                                                                                                                                                               41 LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI 95
                                                                                                                                                                                 65
                                                                                                                                                                                                                                                                       u
                                                                                                                                VDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVYLYMDPMCLDAFPKLVSF 215
                                                                                                                                                                                                                     DGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 155
                                                                                                                                                                                                                                                                       LGYWNIRGLAHSIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNLPYLI 64
                                                                                                                                                                          DGTHKITQSNAILRYIARKHNLCGESEKEQIREDILENQFMDSRMQLAKLCYDPDFEKLK 124
PEYLQALPEMLKLYSQFLGKQPWFLGDKITFVDFIAYDVLERNQVFEPSCLDAFPNLKDF
                                                                                                                                                                                                                                                                                                                                                            l Similarity
95; Conserv
                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                      9.0%;
                                                                                                                                                                                                                                                                                                                                                               35;
                                                                                                                                                                                                                                                                                                                                                                 Score 484.5; DB 2;
Pred. No. 3.1e-29;
Pred. No. 3.7;
       216
                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                     218;
                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 isoenzym
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 an acti
                                                                                                                                                                                                                                                                                                                                                                           ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fr
```

A; Residues: 1-218 < CO2>

۲,

```
R:Kamei, K.; Oshino, R.; Hara, S.
J. Biochem. 107, 111-117, 1990
A;Title: Amino acid sequence of glutathione S-transferase b from guinea pig liver.
A;Reference number: JX0095; MUID:90236961; PMID:2332413
A;Accession: JX0095
  666
                                                                                                                                                                                                                                                            glutathione transferase (EC 2.5.1.18) b - guinea pig N;Alternate names: glutathione S-alkyltransferase; gl C;Species: Cavia porcellus (guinea pig) C;Date: 07-Sep-1990 #sequence_revision 07-Sep-1990 #s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R;Ross, V.L.; Board, P.G.
Blochem. J. 294, 373-380, 1993
A;Title: Molecular cloning and heterologous expression of an A;Reference number: S36782; MUID:93384505; PMID:8373352
A;Accession: S36782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; Keywords: alternative splicing; dimer; transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A:Cross-references: GDB:134191; OMIM:138333
A:Map position: 1p13.3-1p13.3
A:Introns: 12/3: 38/1; 59/3; 87/1; 120/3; 152/3; 189/3
C:Superfamily: glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Title: Structure of human glutathione S-transferase class A;Reference number: I37438; MUID:91174774; PMID:2006920 A;Accession: I37438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Comstock, K.E.; Widersten, M.; Hao, X.Y.; Henner, W.D.; Mannervik, B. Arch. Biochem. Biophys. 311, 487-495, 1994
A;Title: A comparison of the enzymatic and physicochemical properties of human glutathic A;Reference number: $45684; MUID:94263230; PMID:8203914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Gene: GDB:GSTM4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 39-120 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biochem. J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Experimental
Comment: Glutathione transferases are a family of enzymes that are multifunctional Superfamily: glutathione transferase
                                                              Residues: 1-217 <KAM>
                                                                                                                                                                                                                                          Accession: JX0095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cross-references: EMBL:X56837; NID:g31936; PIDN:CAA40167.1; PID:g31937;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Taylor, J.B.; Oliver, J.; Sherrington, R.; Pemble, S.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contents:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Residues: 1-218 <ROS>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cross-references: GB:M96234; NID:g306818; PIDN:AAA57347.1; PID:g306819
Experimental source: Hela cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          experimental source: testis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cross-references: EMBL:M99422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213 VSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             153 TLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKL 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62 YLIDGAHKITQSNAİLCYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDFE 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    госат
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KDFISRFEGLEKISAYMKSSRFLPKPLYTRVAVWG 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KLKPEYLEELPTMMQHFSQFLGKRPWFVGDKTTFVDFLAYDVLDLHRIFEPNCLDAFPNL 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFE 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SMTLGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNLP 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLP 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9.0%; Score 483.5; DB 2
43.7%; Pred. No. 3.7e-29;
tive 38; Mismatches 78
                                                                                                                                                                                                                                                       07-Sep-1990 #text_change 18-Jun-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
                                                                                                                                                                                                                                                                                                      glutathione S-aryltransferase; gluta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              M
U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alternatively spliced human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲.
                                 'n
```

```
밁
                                                             В
                                                                                           Ş
                                                                                                                            밁
                             ş
                                                                                                                                                          δÃ
                                                                                                                                                                                           В
                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 92
184 ISRFEGLEKISSYMKSSRFLPKPL 207
                        216 KKRIEAIPQIDKYLKSSKYIAWPL 239
                                                        124 AEFLEGIPDKMKLFSQFLGKLPWFAGNKLTYVDFLAYDVLDQYRMLEPKCLEAFPNLKDF
                                                                                      156 VDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSF 215
                                                                                                                              64
                                                                                                                                                            96
                                                                                                                                                                                                                   41 LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI 95
                                                                                                                                                                                   4 LGYWNIRGLTHPIRLILEYTNSGYEEKRYNMGDAPDYDRSQWLNEKFKLGLDFPNLPYLI 63
                                                                                                                     DGTHKLTQSNAILRYIARKHNLCGVTEEETIRMDILENQVMDIRMQLIMLCYSPDFEQKK 123
                                                                                                                                             DGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 155
                                                                                                                                                                                                                                                     Similarity 45.1
92; Conservative
                                                                                                                                                                                                                                                                      9.0%; Score 481.5;
45.1%; Pred. No. 5.2
                                                                                                                                                                                                                                                    35; Mismatches
                                                                                                                                                                                                                                             3.2e-29;
72;
                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                   217;
                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                Gaps
                                                        183
```

Search completed: May 20, Job time: 42.5066 secs

2003,

11:39:29

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum |
Maximum |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
    DB seq length: 0
DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-081-408-20
5357
1 MDWLRNLLFLMAAA(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              May 20, 2003, 08:02:28 ; Search time 23.557 Seconds (without alignments) 1757.161 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                112892 seqs, 41476328 residues
      SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MDWLRNLLFLMAAAQSINAA.....QAAACAPDLPAFSHGGFSHN 998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB
GTMU_RABIT
GTM6_MOUSE
GTM2_HUMAN
GTM4_HUMAN
GTMU_CRILO
GTMU_MCSRILO
GTM1_HUMAN
GTM2_MOUSE
GTM1_HUMAN
GTM3_RAT
GTM3_RAT
GTM3_MOUSE
GTM3_MOUSE
GTM3_MOUSE
GTM3_MOUSE
GTM3_MOUSE
GTM5_MOUSE
GTM5_MOUSE
GTM5_MOUSE
GTM5_MOUSE
                                                                                                                                                                                                                                                                                                                                  APP_RAT
ABP_HUMAN
APP_HUMAN
ACG_SCHJA
GT26_SCHJA
GT27_SCHMA
GT29_FASHE
GT29_FASHE
GT29_FASHE
GT29_FASHE
GT28_FASHE
GT21_MOUSE
GTM1_MOUSE
GTM1_RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AOC3_HUMAN
AOC3_MOUSE
AOCY_BOVIN
AOCX_BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           112892
                                                                                                                                                                                                                                                                                         Q16853 homo sapien
Q70423 mus musculu
Q46406 bos taurus
Q29437 bos
                                                            P28161 homo sapien
Q03013 homo sapien
P16413 cavia porce
Q00285 cricetulus
P30116 mesocricetu
P15626 mus musculu
P09488 homo sapien
P46439 homo sapien
P08010 rattus norv
P19639 mus musculu
    P21266
P48774
P20136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Description
5 homo sapien
4 mus musculu
5 gallus gall
```

413 7.7 755 1 AMO_KLEAE 397.5 7.4 757 1 AMO_KCLEAE 397.5 7.4 757 1 AMO_ECOLI 395.5 7.4 219 1 GTM1_DERFT 377 7.0 683 1 AMOH_ARTGO 36.8 6.8 648 1 AMO1_ARTS1 36.3 6.8 648 1 AMO2_ARTS1 36.3 6.8 648 1 AMO2_ARTS1 36.0 674 1 AMO_EERCU 310.5 8 666 1 AMO_LENCU 310.5 8 674 1 AMO_LENCU 310.5 8 674 1 AMO_LENCU 310.5 8 672 1 AMO_LENCU 310.5 8 672 1 AMO_DICAN 256.5 4.8 208 1 GTP_DIRIM	7.4 755 7.4 219 7.6 683 7.0 648 6.8 648 1 6.3 638 1 6.3 638 1 6.3 674 1 7 671 1 7 671 1 7 671
755 757 219 648 648 1 674 1 667 671 1 208 1	755 1 AMO_KLEAE P49250 757 1 AMO_ECOLI P46883 219 1 GTMI_DERPT Q59118 683 1 AMOH_ARTGO Q59118 648 1 AMOH_ARTG1 Q07121 648 1 AMOZ_ARTG1 Q07123 638 1 PAOX_ARTG0 P46881 674 1 AMO_EEA Q43077 666 1 AMO_LENCU P49252 671 1 AMO_FICAN P49252 672 1 AMO_FICAN P46436
مر مر سر سر سر سر سر سر سر سر	1 AMO_KLEAE P49250 1 AMO_ECOLI P46883 1 GTM1_DERFT P46419 1 AMOH_ARTGO Q59118 1 AMOL_ARTS1 Q07121 1 AMO_ARTS1 P46881 1 PAOX_ARTGO P46881 1 AMO_DERG P49252 1 AMO_DERG P49252 1 AMO_DERG Q12586 1 AMO_DERG P49252
1 AMO_KUEAE 1 AMO_KOLI 1 GTM1_DERPT 1 AMOH_ARTGO 1 AMO1_ARTS1 1 AMO2_ARTS1 1 PAOX_ARTGO 1 AMO_LERCU 1 AMO_LERCU 1 AMO1_ASPNG 1 AMO_LERCU 1 AMO_DICAN 1 GTP_DIRIM	P49250 P46683 P46419 Q59121 Q07121 Q07123 P4683071 Q43077 P49252 Q12556 P12807 P46426
AMO_KCEAE AMO_ECOLI GTM1_DERPT AMOH_ARTGO AMOH_ARTS1 AMO2_ARTS1 AMO2_ARTGO AMO_PEA AMO_PEA AMO_LENCU AMO_PEA AMO_LENCU AMO_PICAN GTP_DIRIM	P49250 P46883 P46419 Q591121 Q07121 Q07123 P46883 P46807 P49252 Q12556 P12807 P46426
	P46883 P46883 Q591181 Q07121 Q07123 Q07123 Q07123 P46887 Q43087 P49252 P49252 P49252 P49252

ALIGNMENTS

Ş	ဂ္ဂ	8	38	3 8	36	င်္ဂ	റ്റ	ဌ	င္ပ	CC	ဌဌ	റ്റ	6	16	8	18	2 6	88	38	6	2	റ്റ	CC	റ്റ	RL	RT	RT	RA	RX	RC	RP	o :	2 2	9 2	Z	3 3	2 2	RP	RN	o X	გ	88	2 5	2 C) [, D	ΡŢ	DŢ.	ž t	AOC 3	RES
EMBL; U39447; AACSU919.1;		an email to license@isb-sib.ch).		non-brotte institutions as rong as its content	European Bioinformatics Institute. There are no restrictions on	ween the Swiss Institute of Bioinformatics and the EMBL outstation	ROT entry is copyright. It is produced through a collaboratio	111111111	! - SIMILARITY:	ATED.	autoxidation of a specific	(TPQ) is generated by copper-c	ENDOTHELIA.	ENDOTHELIAL VENULES OF PERIPHERAL LIMPH NOUES AND ON HEPATIC	:- TISSUE SPECIFICITY: MOST STRONGLY EXPRESSED ON THE HIGH	:- SUBCELLULAR LOCATION: Type II membrane protein.	SUBUNIT: HOMODIMER.	: - COFACTOR: Binds i	H(2)0(2).	-!- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) = RCHO + NH(3) +	INDEPENDENT FASHION. HAS A MONOAMINE OXIDASE ACTIVITY.		IG OF LYMPHOC	IN THAT PARTICIPATE IN L		ule.";	tein 1 reveals a r		80;	ung;	SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.	[2]	170:270-286/1006)	1000	2 2222	NE=9/128319; 1	D	SEQUENCE FROM N.A.			Eutheria; Primates; Catarrhini; Hominidae;	ryota; Metazoa; Chordata;	(Human)	L) (VAF'I) (HFAC).	mbrane copper	(Rel. 41, Last annotation update)	(Rel. 35, Last	35, Created)	STANDARD, FALL	HUMAN CHANDADA 263	SULT 1

```
δõ
                                                        В
                                                                                       δÃ
                                                                                                                             8
                                                                                                                                                         Ωy
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE; PSO1164; COPPER_AMINE_OXID_1; 1.
PROSITE; PSO1165; COPPER_AMINE_OXID_2; 1.
OXIGOTEGUETASE; Copper; TPO; Glycoprotein; Transmembrane; Signal-anchor; Cell adhesion; Polymorphism; Metal-binding.
CYTOPLASMIC (POTENTIAL).
DOMAIN

1
5
CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PFINTS; PR00766; CUDAOXIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MIM; 603735;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      METAI
                       803
                                                                                                                             448
                                                                                                                                                                683
                                                                                                                                                                                                 388
                                                                                                                                                                                                                                  623
                                                                                                                                                                                                                                                                    328
                                                                                                                                                                                                                                                                                                     563
                                                                                                                                                                                                                                                                                                                                      268
                                                                                                                                                                                                                                                                                                                                                                       503
                                                                                                                                                                                                                                                                                                                                                                                                           208
                                                                                                                                                                                                                                                                                                                                                                                                                                            443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
mes 735; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAA 322
GRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                                                        LVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                   GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                         GRYYDSLAQLEAGFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQEYPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                                    LVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HPSYMRDVTVERHGOPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HGNC:550; AOC3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PR000269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ΑΑ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAC25170.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           763
471
520
520
684
673
1137
232
294
618
666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    74.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CuNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AMILORIDE
N-LINKED (
N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COPPER
COPPER
COPPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 3967;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL-ANCHOR (TYPE-II MEMBRANE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       58AD55605EC9D228 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -> H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IKED (GICNAC ...) (PO)
IKED (GICNAC ...) (PO)
IKED (GICNAC ...) (PO)
IKED (GICNAC ...) (PO)
IKED (GICNAC ...) (PO)
IKED (GICNAC ...) (PO)
IKED (GICNAC ...) (PO)
IKED (GICNAC ...) (PO)
IKED (GICNAC ...) (PO)
IKED (GICNAC ...) (PO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.5e-289;
nes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROTEIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                      502
                                                    567
                                                                                   802
                                                                                                                        507
                                                                                                                                                                                         447
                                                                                                                                                                                                                            682
                                                                                                                                                                                                                                                               387
                                                                                                                                                                                                                                                                                                622
                                                                                                                                                                                                                                                                                                                                327
                                                                                                                                                                                                                                                                                                                                                                   562
                                                                                                                                                                                                                                                                                                                                                                                                    267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
ARESULT RESIDENT RESI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
Pfam; PF01179; Cu_amine_oxid: 1.

Pfam; PF02727; Cu_amine_oxidN2; 1.

Pfam; PF02728; Cu_amine_oxidN3; 1.

Pfam; PF02728; Cu_amine_oxidN3; 1.

PRINTS; PR00766; CUDANXIDASE.

PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.

Oxidoreductase; Copper; TPO; Glycoprotein; Trasignal anchor; Cell adhesion; Metal-binding.

DOMAIN

1 6 CYTOPLASMIC (POTE
                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AOC3_MOUSE
070423;
                                                                                                                                                                                                                                                                         EMBL; AF054831; AAC23747.1; -. EMBL; AF078705; AAC35839.1; -. EMBL; BG181306797; AOC3.
InterPro; IPR000269; CuNH_oxida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN-BALB/C, and 129/SvJ;
STRAINE-98414290; PubMed-9743358;
Bono P., Salmi M., Smith D.J., Leppanen I., Horelli-Kuitunen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Palotie A., Jalkanen S.:
"Isolation, structural characterization, and chromosomal mapping the mouse vascular adhesion protein-1 gene and promoter.";
J. Immunol. 161:2953-2960(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10090;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-JUL-1999
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .5-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H(2)O(2).

H(2)O(2).

COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit. SUBUNIT: HOMODIMER (BY SIMILARITY).

SUBCELLULAR LOCATION: Type II membrane protein. SUBCELLULAR LOCATION: Type II membrane protein. PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). PTM: N- AND O-GLYCOSYLATED (BY SIMILARITY).

SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FUNCTION: CELL ADHESIÓN PRÓTEIN THAT PARTICIPATE IN LY
RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES
PERIPHERAL LYMPH NODE VASCULAR ENDOTHELIAL CELLS IN AN
INDEPENDENT FASHION. HAS A MONOAMINE OXIDASE ACTIVITY:
CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (VAP-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OR VAP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AEDIPNTYTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ERYQLAVTQRKEEEPSSSSVFNQNDFWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ERYQLAYTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                copper amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Rel.)
(Rel.)
(Rel.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38,
38,
                                                                                                                                                                                                                                                                         CuNH_oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation update)
oxidase (EC 1.4.3.6) (Vascular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; |
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Euteleostomi;
; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IN AN L-SELECTIN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IN LYMPHOCYTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RCHO + NH(3) +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             adhesion protein-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          687
```

(POTENTIAL)

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                          ő
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                 Ó
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                    Š
                                                                                                                                                                       В
                                                            δ
                                                                                                        밁
                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOD_RES
METAL
METAL
METAL
BINDING
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                                                      448
                                                                                                                                                                                                                                                                                                                                                         683
                                                                                                                                                                                                                                                                                                                                                                                           388
                                                                                                                                                                                                                                                                                                                                                                                                                           623
                                                                                                                                                                                                                                                                                                                                                                                                                                                               328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        263
                                      889
                                                                                                                                             863
                                                                                                                                                                              568
                                                                                                                                                                                                                                                508
                                                                                                                                                                                                                                                                                   743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAA 322
                                                                                                                                                                                                                                            AEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA
                                                                                                                                                                          LLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
||| ||:||| :| |||||||||||||||||||||||: : |:|
LLETEEEAAFPLGGATPRYLYLASNHSNKWGHRRGYRIQILSFAGKPLPQESPIEKAFTW
                                                                                                                                                                                                                                                                                                                  SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLYYEISLQEALAIYGGNSPAAWTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GRYYESLTQLEDQFEAGLVNVVLVPNNGTGGSWSLKSSVPPGPAPPLQFHPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQG
CAPDLPAFSHGGFSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                             SQVSSSLWAFSFGLGAFSGPRIFDIRFQGERVAYEISVQEAIALYGGNSPASMSTCYVDG
                                      AEDIPNTVTAGNSVGFFLRPYNFFDEDPSFHSADSIYFREGQDATACEVNPLACLSQTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       al Similarity 83.0
610; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL).

EXTRACELLULAR (POTENTIAL).
TOPAQUINONE (BY SIMILARITY)
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILARITY).
AMILORIDE (BY SIMILARITY).
AMILORIDE (GLCNAC...) (POT.
N.-LINKED (GLCNAC...) (POT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 3365; DB 1; Pred. No. 4.4e-244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIGNAL-ANCHOR (TYPE-II MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         o.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4.4e-244;
hes 63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
)(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           765;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROTEIN)
                                                                       982
                                                                                                                                                                                                             862
                                                                                                                                                                                                                                                                                   802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     87
                                                                                                        687
                                                                                                                                                                            627
                                                                                                                                                                                                                                                567
                                                                                                                                                                                                                                                                                                                      507
                                                                                                                                                                                                                                                                                                                                                                                                                                                             387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
A THE THE TWO COLUMN TO CO
Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; Y15774; CAA75776.1; -.

InterPro; IPR000269; CUNH_Oxidase.

Pfam; PF01179; CU_amine_oxid; 1.

Pfam; PF02727; CU_amine_oxidN3; 1.

Pfam; PF02728; CU_amine_oxidN3; 1.

PRINTS; PR00766; CUDAOXIDASE.

PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.

Oxidoreductase; Copper; TPQ; Glycoprotein; Si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AOCY_BOVIN
046406;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Copper amine oxidase, lung isozyme precursor (EC 1.4.3.6) (Amine oxidase [copper-containing]) (BOLAO).
Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
Bovidae; Bovinae; Bos.
NCBI_TaxID=9913;
                                                                                                   CHAIN
MOD_RES
METAL
METAL
BINDING
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/an or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SÜBCELLULAR LOCATION: Extracellular (By similarity).
-!- TISSUE SPECIFICITY: LUNG, SPLEEN, HEART, KIDNEY.
-!- PTM: Topaquinone (TPQ) is generated by copper-dependent
-i- autoxidation of a specific tyrosyl residue (By similarity).
-!- SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        copper amine oxidases.".
Eur. J. Biochem. 251:320
-i- CATALYTIC ACTIVITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hogdall
Vuust J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Structure and tissue-specific expression copper amine oxidases.";
Eur. J. Biochem. 251:320-328(1998).
-i- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        H(z) \cup (z).
-i- COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-98151264; PubMed-9492300;
                                                                                                                                                                                                                                                                                                                                                                                                SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                              Local
                                                  Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     similarity).
ENZYME REGULATION: INHIBITED
(BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H(2)0(2
  al Similarity
616; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E.V.S.,
                                                                                                   470
519
521
521
521
672
136
231
231
293
665
     Conservative
                                                                                                     Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                         762
470
519
521
672
672
136
231
231
231
617
84883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Houen
                            62.3%;
83.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ດ
;
                                                                                                        ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Borre
                                                                                              COPPER AMINE OXIDASE, LUNG ISOZYME.
TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILARITY).
AMILORIDE (BY SIMILARITY).
N-LINKED.(GLCNAC...) (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
; Score 3338; DB 1; Pred. No. 4.7e-24
42; Mismatches ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BY AMILORIDE IN A COMPETITIVE MANNER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bundgaard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           H(2)0 + O(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ប.ឆ.,
                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ı
       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       encoding bovine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Larsson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RCHO +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a collaboration -
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NH(3)
     ω,
     Gaps
       ۲,
```

EGGVGSEEGVGKQCHPSLPPRCPSRSPSDQPWT

263 19

QGGDGGE------PSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL 314

HPDQSQLFADLSREELTAVMSFLTQKL 78

```
RESULT ACCX_BE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÔ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . 6
                                                                                                                                                                                                                                                                  01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Copper amine oxidase, liver isozyme precursor
oxidase [copper-containing]) (Serum amine oxi
    "Primary structures oxidase.";
J. Biol. Chem. 269:9
                                      MEDLINE-94193686; PubMed-8144587;
Mu D. Medzihradszky K.F., Adams
Burilogame A.L., Smith A.J., Cai
"Primary structures for a mammali
                                                                                                                     SEQUENCE FROM N.A.,
TISSUE-Liver;
                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea Bovidae; Bovinae; Bos. NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                      BOVIN
                                                                                                                                                                                                                                                                                                                                                                             AOCX_BOVIN
Q29437;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            79
                                                                                                                                                                                                                                                         taurus (Bovine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIQKVEYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACLPQAAACAPDLPÅFSHGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GPRFSVOGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIQKVFFQGRYYESLVQLEEQFEAGRVNVVVIPNNGTGGSWSLKSQVPPGPTPPLQFHPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SMARGFSWERYQLAVTQRKEEEEPSSSSYENQNDPWAPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QRLQVIRKQLETEEQAAFPLGGGSPRYLYLASKQSNKWGHPRGYRIQTVSFAGRPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTRFSVQGSRVTSSLWTFSFGLGAFSGPRIFDIRFQGERLAYEISLQEAVAIYGGNTPAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STERAISWGRYQLAVTQRKETEPSSSSVFNQNDPWTPTVDFADFINNETIAGKDLVAWVT
269:9926-9932(1994)
                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                        AND
                                                                                                                                    PARTIAL
                                        mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      995
                                                                                                                                                                                                                                                                          isozyme precursor (EC 1.4.3.6) (Serum amine oxidase) (SAO).
                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                    3 G.W., Mayer |
1 D., Klinman ,
lian cellular /
                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                               762
                                                                                                                                                                                                                                                                                                                                                                                               ζ
                                      р.,
J.p.
                                                          Hines
                                      serum
                                                                             Σ
                                      copper
                                                                                                                                                                                                                 Bovoidea;
                                                                                                                                                                                                                                                                                              (Amine
                                      amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 258
```

```
Š
                         В
                                            δõ
                                                                          B
                                                                                                  Š
                                                                                                                            В
                                                                                                                                                 Q
                                                                                                                                                                               밁
                                                                                                                                                                                                        20
                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                     METAL
METAL
BINDING
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PRNTS; PF00766; CUDAOXIDASE
PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
Oxidoreductase; Copper_ TPQ; Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
MOD_RES
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; S69583; AAB30397.1; -
EMBL; L27218; AAA30525.1; -
InterPro; IPR000269; CuNH_oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       [2]
PARTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochemistry 31:12147-12154(1992).
-!- CATALYTIC ACTIVITY: RCH(2)NH(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amine oxidases.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PARRIAL SEQUENCE.
MEDLINE-93090748; PubMed-1457410;
Janes S.M., Palcic M.M., Scaman C.F
Dooley D.M., Mure M., Klinman J.P.;
"Identification of topaguinone and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIGNAL
                                                  495
  555
                          259
                                                                            199
                                                                                                    435
                                                                                                                             139
                                                                                                                                                      375
                                                                                                                                                                                                           315
                                                                                                                                                                                                                                                263 QGGDGGE-----PSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL
                                                                                                                                                                                79
                                                                                                                                                                                                                                   19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBCELLULAR LOCATION: Extracellular. TISSUE SPECIFICITY: LIVER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        H(2)O(2).
COFACTOR: Binds 1 of ENZYME REGULATION:
                      GPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAA
                                                                                                                                          ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
                                                                                                                                                                                             GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                                      FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
                                                                                                                                                                                GPDLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGGQPQPNVT
                                                                                                                                                                                                                                 EGGVGSEEGVGKQCHPSLPPRCPSRSPSDQPWTHPDQSQLFADLSREELTTVMSFLTQQL 78
                                                                            SYKQGGQKLLTMNSAPRGVQSGDRSTWFGIYYNITKGGPYLHPVGLELLVDHKALDPADW
                                                                                                                             ELVVGPLPQPSYMRDVTVERHGGPLPYYRRPVLLREYLDIDQMIFNRELPQAAGVLHHCC
                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                       170
470
519
521
521
683
672
136
136
655
                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                       ₹,
                                                                                                                                                                                                                                                                                                                                                    16
762
470
519
521
521
683
136
665
                                                                                                                                                                                                                                                                                               62.1%;
81.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        copper ion : INHIBITED
                                                                                                                                                                                                                                                                                                                                        Œ;
                                                                                                                                                                                                                                                                                     57;
                                                                                                                                                                                                                                                                                                                                   COPPER AMINE OXIDASE, LIVER I
TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILARITY).
AMILORIDE (BY SIMILARITY).
AMILORIDE (BY SIMILARITY).
N-LINKED (GLCNAC...) (POTEN
                                                                                                                                                                                                                                                                                               Score 3326; DB 1;
Pred. No. 3.7e-241;
                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and
By A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d 1 topaquinone
AMILORIDE IN A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Smith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             H(2)0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  consensus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A.J.,
                                                                                                                                                                                                                                                                                    70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0(2)
                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence
                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Brown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
                                                                                                                                                                                                                                                                                                                                               (POTENTIAL).) (POTENTIAL).)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      per subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Metal-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RCHO +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          o
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ISOZYME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ħ
                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 copper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MANNER
                                                                                                                                                                                                                                                                                   Gaps
 614
                                                554
                                                                                                  494
                                                                                                                            198
                                                                                                                                                     434
                                                                                                                                                                               138
                                                                                                                                                                                                        374
                                                                          258
                                                                                                                                                                                                                                                                                   ۲
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                              ACC2_HUMAN STANDARD; PRT; 7
075106; 075105; 000120; 09UNYO;
15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Retina-specific copper amine oxidase p
(Amine oxidase (copper-containing)).
Phang X., McIntire W.S.;

"Human copper containing amine oxidases.";

Submitted (JUL-1998) to the EMBL/GenBank/DDBJ databases.

-1- FUNCTION: MAY BE A CRITICAL MODULATOR OF SIGNAL TRANSMISSION RETINA, POSSIBLY BY DEGRADING THE BIOGENIC AMINES DOPAMINE, AND PUTRESCINE.

HISTAMNINE, AND PUTRESCINE.

-1- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) = RCHO + NH(3)
                                                                                                                                                                                                             Imamura Y., Kubota R., Wang Y., Asakaw Oguchi Y., Shimizu N.;
"Human retina-specific amine oxidase (expression, and chromosomal mapping.", Genomics 40:277-283(1997).
                                                                                                                              Imamura Y., Noda S., Mashima Y., Kudoh J., Oguchi Y., Shimizu N.; "Human retina-specific amine oxidase: genomic structure of the ge (AOC2), alternatively spliced variant, and mRNA expression in retina.";
                                                                                  TISSUE-Retina;
                                                                                                                                                                                      SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                       TISSUE=Retina;
MEDLINE=97237047; PubMed=9119395;
                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HUMAN
                                                                                            SEQUENCE FROM N.A.
                                                                                                                     Genomics 51:293-298(1998).
                                                                                                                                                                             MEDLINE=98390194;
                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QRLQVTRKQLETEEQAAFPLGGASPRYLYLASKQSNKWGHPRGYRIQTVSFAGGPMPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MLTRYMDSGFGMGYFATPLIRGVDCPYLATYMDWHFVVESQTPKTLHDAFCVFEQNKGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDQEPSMDSADSIYFREGQDAGSCEINPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PMERAFSWGRYQLAITORKETEPSSSSVFNQNDPWTPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                            PubMed-9722954;
                                                                                                                                                                                                                                                                                                                                    Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               759
                                                                                                                                                                                                                                                                                                                                  Craniata; Vo
Catarrhini;
                                                                                                                                                                                                                                                             Asakawa
                                                                                                                                                                                        SPLICING
                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                            precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                     756
                                                                                                                                                                                                                                      (RAO):
                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                             s:
                                                                                                                                                                                                                                                                                                                                    Vertebrata;
i; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₿
                                                                                                                                                                                                                                      cDNA cloning,
                                                                                                                                                                                                                                                             Kudoh
                                                                                                                                                                                                                                                                                                                                                                                              (EC
                                                                                                                                                                                                                                                             Ū.,
                                                                                                                                                                                                                                                                                                                                                                                              1.4.3
                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                                                                                                                                                                                                                                     Homo
                                                                                                                                                                                                                                                             Mashima
                                                                                                                                                                                                                                                                                                                                                                                              .
6)
                                                                                                                                                                                                                                       tissue
NH(3)
                                                                                                                                                                                                                                                             Υ.,
                                                                                                                                                     gene
                                    Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              794
```

328

9

88

327

387 148 268

29

149

Db Db

206 507 266

```
Matches
           Query Match
Best Local
                                          CARBOHYD
VARSPLIC
CONFLICT
CONFLICT
CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                               BINDING
CARBOHYD
CARBOHYD
                                                                                                                                                                                CHAIN
MOD_RES
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and entitles requires a license agreement (See http://www.isb-sor send an email to license@isb-sib.ch).
                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                        Signal;
SIGNAL
                                                                                                                                                                                                                                                           Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PRINTS; PR00766; CUDAOXIDASE.
PROSITE; PS01164; COPPER_AMINE_OXID_1;
PROSITE; PS01165; COPPER_AMINE_OXID_2;
Oxidozeductase; Copper; TPQ; Alternativ
                                                                                                                                                                                                                                                                                                                                                                            EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          + +
                                                                                                                                                                                                                                                                                                                                                       MIM;
                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                  Genew;
                                                                                                                                                                                                                                                                                                                                            InterPro; IPR000269; CuNH_oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H(2)O(2).

COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit. COFACTOR: BINDS 1 copper ion and 1 topaquinone per subunit. ALTERNATIVE PRODUCTS: AT LEAST 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING. TISSUE SPECIFICITY: RETINAL-SPECIFIC.

PIM: Topaquinone (IPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity).

- SIMILARITY: BELONGS TO THE COPPER, TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                          L; AB012943; BAA32590.1; -.

AB012942; BAA32590.1; JOINED.

L; AB012943; BAA32589.1; -.

C; AB012942; BAA32589.1; JOINED.

L; D88213; BAA19001.1; -.

L; AF081363; AAD39345.1; -.
                                                                                                                                                                                                                                                                                                                                                     w; HGNC:549; AOC2.
602268; -.
                                                                                                                                                                                                                                         Metal-binding.
Similarity 65.8
30; Conservative
                                            33
516
518
518
689
669
133
198
226
588
662
221
181
215
2215
                                        47.7%;
                                             MW;
 88;
                                                      N-LINKED (GLCNAC...) (POTE
N-LINKED (GLCNAC...) (POTE
N-LINKED (GLCNAC...) (POTE
N-LINKED (GLCNAC...) (POTE
N-LINKED (GLCNAC...) (POTE
MISSING (IN SPORT ISOFORM).
D -> E (IN REF. 3).
RERT -> GDRA (IN REF. 3).
MA -> IG (IN REF. 1).
Q -> H (IN REF. 3).
                                                                                                                                                                     RETINA-SPECIFIC COPPER AMIN
TOPAQUINONE (BY SIMILARITY)
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILARITY).
          Score 2556;
Pred. No. 1
                                                                                                                                                                                                                                                              Alternative
                                             4E3B7317E6DACA66
 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (See http://www.isb-sib.
l.8e-183;
nes 158;
                                                                                                                                                                                                                                                              splicing; Glycoprotein;
           DB 1;
8e-183;
                                                                                                                                                                                                                   IMILARITY).
                                             CRC64;
                     Length
 Indels
                                                                                                                                     ) (POTENTIAL).
) (POTENTIAL).
) (POTENTIAL).
                                                                                                                                                                                                                            AMINE
                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            is
                                                                                                                                                                                                                              OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a collaboration -
  4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   outstation
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  commerci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9 9
  2
```

```
ABP_RAT

ABP_RAT

ABB AC

P36

ABB

AC

ABB

AB

ABB

AB

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δĀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JUN-1994
01-JUN-1994
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABP_RAT
P36633;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUN-1994 (Rel. 29, Created)
01-JUN-1994 (Rel. 29, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Amiloride-sensitive amine oxidase [copper-containing] precursor (EC 1.4.3.6) (Diamine oxidase) (DAO) (Amiloride-binding protein)
                                                                                                                                                                                                    Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=Wistar; TISSUE-Colon, and MEDLINE-93387321; PubMed-8375402;
                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. STRAIN-Wistar; TIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABP) (Histaminase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               568
                               H(2)O(2).

COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit. SUBUNIT: HOMODIMER; DISULFIDE-LINKED.

SUBCELLULAR LOCATION: Extracellular.

SUBCELLULAR LOCATION: Extracellular.

PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ||| ||: ||
DLPPFSYHGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEEQAAFIVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SLWTFSFGLGAFSGPRIFDVRFQGERLYYEISLQEALAIYGGNSPAAWTTRYVDGGFGMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DLPAFSHGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IPNTVTLGNRVGFLLRPYNFFDEDPSIFSPGSVYFEKGQDAGLCSINPVACLPDLAACVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RNSRGLVRGVDCPYQATMVDIHILVGKGAVQLLPGAVCVFEEAQGLPLRRHHNYLQNHFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QLVVTQRKEEESQSSSIYHQNDIWTPTVTFADFINNETLLGEDLVAWVTASFLHIPHAED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEDLTAFSLGSPLPRYLYLASNQTNAWGHQRGYRIQIHSPLGIQIPLESDMERALSWGRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VGERVLGTVHTHAFHFKLDLDVAGLKNWVVAEDVVFKPVAAPWNPEHWLQRPQLTRQVLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DLGQLEREFKSGRLEVVRVPLPPPNGASSLRSRNSPGPLPPLQFSPQGSQYSVQGNLVVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          995
    entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chordata;
  is copyright.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                     Lung
                                                                                                                                                                                                                                                                                                                                                                     N., Waldmann
  Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            746
  is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₿
produced
                                                                                                                                                                                                                                                       COMPOUNDS
                                                                                                                                                                                                              +
                                                                                                                                                                                                                                                                                                                           of.
                                                                                                                                                                                                         0(2)
                                                                                                                                                                                                                                                                                                                                                                       R.,
                                                                                                                                                                                                                                                                                                                           different

    RCHO + NH(3)

                                                                                                                                                                                                                                                                                                                                                                            Chassande
through
                                                                                                                                                                                                                                                          SUCH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Murinae; Rattus
                                                                                                                                                                                                                                                                                                                              molecular
  D
  collaboration
                                                                                                                                                                                                                                                                                                                                                                          0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              326
```

```
Š
                            밁
                                                   Š
                                                                                 밁
                                                                                                           Š
                                                                                                                                      밁
                                                                                                                                                              Š
                                                                                                                                                                                             밁
                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING
BINDING
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF02727; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2;
Pfam; PF02728; Cu_amine_oxidN3; 1
PRINTS; PR00766; CUDAOXIDASE.
PROSITE; PS01164 COCCO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
Signal; Glycoprotein; Oxidoreductase; Cop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR; S34656; S34656.
PIR; S36847; S36847.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Metal-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR000269;
  746
                                                                                                            629
                                                                                                                                        316
                                                                                                                                                                 569
                                                                                                                                                                                             261
                                                                                                                                                                                                                        524
                                                                                                                                                                                                                                                203
                                                                                                                                                                                                                                                                           464
                                                                                                                                                                                                                                                                                                      148
                                                                                                                                                                                                                                                                                                                                  411
                                                                                                                                                                                                                                                                                                                                                                                       351
                                                                                                                                                                                                                                                                                                                                                                                                                                   291 QSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDR
                                                                                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local (
                                                                                                                                                                                                                                                                                                                                                                                                                29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ween the Swiss Institute of Bioinformatics and the European Bioinformatics Institute. There are no re
                                                                                                                                                    LWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGK
                                                                                                                                                                                                                                                                                                                                                                           GSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQE
  VSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLE
                           FYAGLKGYVLVLRTTSTVYNYDYIWDFIFYSNGVMEAKMHATGYVHATFYTPEGLRHGTR
                                            YFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYGNQ
                                                                                                           YTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS---H
                                                                                                                                      GWSFSYRLRSSSGLQIFNVLFGGERVAYEVSVQEAVALYGGHTPAGMQTKYIDVGWGLGS
                                                                                                                                                                                             VVLEDPLPNGTE-----KPPLFSSYKPRGEFHTPVNVAGPHVVQPSGPRYKLEGNTVLYG
                                                                                                                                                                                                                     VLIPD---NGTGGSWSLKSPV-------PPGPAPPLQFYPQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                VQRYVE--GYFLHPTGLEILLDHGSTDVQDWRVEQLWYNGKFYNNPEELARKYAVGEVDT
                                                                                                                                                                                                                                                                          LYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNV
                                                                                                                                                                                                                                                                                                      Y----DLLYH-TLKRATMPLHQFFLDTTGFSFLGCDDRCLTFTDVAPRGVASGQRRSWFI
                                                                                                                                                                                                                                                                                                                               YLDIDQMIFNRELPQASGLLHH------CCFYKHRGRNLVTMTTAPRGLQSGDRATWFG
                                                                                                                                                                                                                                                                                                                                                           GRKGPNREARAVIFFGAQDYPNVTEFAVGPLPRPYYIRALS-PRPGHHLSWSSRPISTAE
                                                                                                                                                                                                                                                                                                                                                                                                                KARVFADLSPQEIKAVHSFLMNREELGLQPSKEPTLAKNSVFLIEMLLPKKKHVLKFLDE
                                                                                 VTHELAPGIDCPETATFLDAFHYYDSDGPVHYPHALCLFEMPTGVPLRRHFNSNFKGGFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pro; IPR000269; CuNH_oxidase
PF01179; Cu_amine_oxid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X73911; CAA52116.1;
X73912; CAA52117.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       505
505
507
670
570
570
570
570
570
570
570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            85021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ME.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALT_INIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN (BY SIMILARITY).
AMILORIDE (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
N-LINKED (GLCNAC...) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1398.5; DB 1; Pred. No. 8.8e-97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMILORIDE-SENSITIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COPPER-CONTAINING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6C564D044D07BCB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Copper;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     here are no restrictions as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
 308
                                                      745
                                                                                 435
                                                                                                            685
                                                                                                                                      375
                                                                                                                                                                 628
                                                                                                                                                                                             315
                                                                                                                                                                                                                                                260
                                                                                                                                                                                                                                                                           523
                                                                                                                                                                                                                                                                                                      202
                                                                                                                                                                                                                                                                                                                               463
                                                                                                                                                                                                                                                                                                                                                          147
                                                                                                                                                                                                                                                                                                                                                                                     410
                                                                                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŚEÓUENCE FROM N.A.

MEDILINE-94237856; PubMed-8182053;

MEDILINE-94237856; PubMed-8182053;

Chassande O., Renard S., Barbry P., Lazdunski M.;

"The human gene for diamine oxidase, an amiloride binding protein.

"The human gene for diamine oxidase, an amiloride binding protein.

"The human gene for diamine oxidase, an amiloride binding protein.

"The human gene for diamine oxidase, an amiloride binding protein.

"The binding sequencing, and characterization of the promote Molecular cloning, sequencing, and characterization of the promote Molecular Chem. 269:14484-14489(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABP_HUMAN STANDARD; PRT; 751 AA.

P19801; Q16683; Q16684;

01-FEB-1991 (Rel. 17, Created)

01-JUN-1994 (Rel. 29, Last sequence update)

15-JUN-2002 (Rel. 41, Last annotation update)

Amiloride-sensitive amine oxidase [copper-containing] precursor (EC. 1.4.3.6) (Diamine oxidase) (DAO) (Amiloride-binding protein)
                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-Placenta;
MEDLINE-96113540; PubMed-8595053;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ABP1 OR DAO1 OR AOC1. Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                           Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                           Zhang
                                                                                                                            Novotny W.F., Chassande O., Baker M., Laza
"Dlamine oxidase is the amiloride-binding
amiloride analogues.";
                                                                                                                                                                                                                                                                                                                                                            TISSUE-Kidney;
                                                                                                                                                                                                                                                                                                                                                                                                                            "CDNA
                                                                                                                                                                         MEDLINE=94193685; PubMed=8144586;
                                                                                                                                                                                                                                                               expression."
                                                                                                                                                                                                                                                                                                                            Barbry P.,
                                                                                                                                                                                                                                                                                                                                            MEDLINE-91017502; PubMed-2217167;
                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY SEQUENCE FROM N.A., AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (ABP) (Histaminase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        496
                                                                                                                                                                                                             SEQUENCE OF 20-39, AND
                                                                                                                                                                                                                                                                           "Human kidney amiloride-binding protein:
                                                                                                                                                                                                                                                                                               lazdunski M.;
                                                                                                                                                                                                                                                                                                             Lingueglia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EQUENCE FROM
BIOL. Chem. 269:9921-9925(1994).

BIOL. Chem. 269:9921-9925(1994).

FUNCTION: CAPALYZES THE DECRADATION OF COMPOUNDS SUCH AS PUTRESCINE, HISTAMINE, SPERMINE, AND SPERMIDINE, SUBSTANCES INVOLVED IN ALLERGIC AND IMMUNE RESPONSES, CELL PROLIFERATION, TUNOR FORMATION, AND POSSIBLY APOPTOSIS. TISSUE DIFFERENTIATION, TUMOR FORMATION, AND POSSIBLY APOPTOSIS. PLACENTAL DAO IS THOUGHT TO, PLAY A ROLE IN THE REGULATION OF THE FEMALE REPRODUCTIVE FUNCTION.

CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) = RCHO + NH(3) +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DVPNTATPGNSVGFLLRPFNFFPEDPSLASRDTVIV-WPQDKGLNRVQ--RWIPEDRRCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DIPNTYTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLAYTKYRESERYSSSLYNQNDPWDPPVVFEEFLRNNENIEDEDLVAWVTVGFLHIPHSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QLAVTQRKEEEPSSSSVENQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFLHIPHAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QEHQAAFRFGQTLPKYLLFSSPQKNCWGHRRSYRLQIHSMAEQVLPPGWQEERAVTWARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEEQAAFLYGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LQTHLLGNIHTHLVHYRVDMDVAGTKNSFQTLTMKLENLTNPWSPSHSLVQPTLEQTQYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VS-PPFSYNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PDLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                      X., Kim J., McIntire W.S.; sequences of variant forms of human em. Genet. 33:261-268(1995).
                                                                                                                                                                                                                                                                                                           Champe M., C)
E., Maes P.,
                                                                                                                                                                                                                                             Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             994
                                                                                                                                                                                                                                             Sci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                            Chassande
                                                                                                                                                                                                                                             U.S.A.
                                                                                                                                                                                                              CHARACTERIZATION
                                                                                                                                                                                                                                                                                                             Frelin C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Craniata; V
Catarrhini;
                                                                                                                                                                                                                                             87:7347-7351(1990).
                                                                                                                                                                                                                                                                                                                            0:
                                                                                                                                                                                                                                                                                                         Tartar
                                                                                                                                                                                                                                                                                                                                                                            PARTIAL
                                                                                                                                                                                                                                                                                                                            Munemitsu
                                                                                                                                              Lazdunski M.,
ding protein a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Vertebrata;
                                                                                                                                                                                                                                                                              cDNA structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hominidae;
                                                                                                                                                                                                                                                                                                             Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                          placenta
                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                             Ullrich
                                                                                                                                                and is in
                                                                                                                                                                                                                                                                                                                            Champigny
                                                                                                                                                                                                                                                                                                                                                                                                                            diamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Euteleostomi;
                                                                                                                                                                                                                                                                              and
                                                                                                                                                ry P.;
inhibited
                                                                                                                                                                                                                                                                                                                                                                                                                            oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       promoter.";
                                                                                                                                                                                                                                                                                                                            G
                                                                                                                                                                                                                                                                              functional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             675
                                                                                                                                                Ϋ́
```

458

RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFE

405 142 345

LAHLDRGSPPPAREALAIVEFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRR 404

LRFLDKGERHPVREARAVIFFGDQEHPNVTEFAVGPLPGPCYMRALS-PRPGYQSSWASR

PVLFQEYLDIDQMIFNRELPQASGLLHH------CCFYKHRGRNLVTMTTAPRGLQSGD

457 196 PWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAA 344

PGTLPRKAGVFSDLSNQELKAVHSFLWSKKELRLQPSSTTTMAKNTVFLIEMLLPKKYHV

82

23

83

285

```
Query Match
Best Local
           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                            CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                              MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Extended 
                                                                                                                                                                                                                                                         BINDING
CARBOHYD
                                                                                                                                                                                                                                                                                                              METAL
                                                                                                                                                                                                                                                                                                                                                                                 METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; A38276; A38276.
PIR; S42495; S42495.
Genew; HGNC:80; ABP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; Ul1863; AAB60381.1; -.
EMBL; M55602; AAA58358.1; ALT_SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                            BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MIM; 104610;
                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                 VARIANT
                                                                                                                                                                                    VARSPLIC
Local 293;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue. SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUBUNIT: HOMODIMER; DISULFIDE-LINKED.
SUBCELLULAR LOCATION: Extracellular.
TISSUE SPECIFICITY: PLACENTA AND KIDNEY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X78212; CAA55046.1; -. U11862; AAC50270.1; -.
                           Similarity
                                                                         28
332
751
                                                                                                                                                                                    391
461
510
512
675
568
664
110
1168
538
538
           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Binds
                                                                             28
332
85363
                                                                                                                                                   645
                                                                                                                                                                                    391
461
510
512
675
575
664
110
110
1168
538
538
                           26.0%;
39.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         copper ion and 1 to R; DISULFIDE-LINKED.
                                                                               MW;
           124;
                                                                                          /FTId-VAR_007542.
R -> A (IN RFF
S -> F
         Score 1394; D
Pred. No. 1.9e
24; Mismatches
                                                                                                                                                   DAO2)
                                                                                                                                                                                                                                                                                                                               COPPER
                                                                                                                                                                                                                                                                                                                                                                               AMILORIDE-SENSITIVE AMINE (COPPER-CONTAINING).
                                                                                                                                                                                    N-LINKED (GLCNAC...) (POTENT
N-LINKED (GLCNAC...) (POTENT
N-LINKED (GLCNAC...) (POTENT
N-LINKED (GLCNAC...) (POTENT
N-LINKED (GLCNAC...) (POTENT
                                                                                                                                                                                                                                                                                                                                                                  TOPAQUINONE
                                                                                                                                                                                                                                                                                            HEPARIN (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                COPPER
                                                                                                                                                                                                                                                                             AMILORIDE
                                                                             -> A (IN REF. 4).
-> F (IN REF. 2).
1B8B6695C44232DA CRC64;
                                                                                                                                                                                                                                                                                                                             (POTENTIAL).
                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                             (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               There are no restrictions ng as its content is in
                       DB 1;
.9e-96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Heparin-binding; TPQ;
                                          Length 751;
            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             per subunit
                                                                                                                                                                                                                       (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                       OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TEMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a collaboration
            38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  commercia
            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 8
              11;
```

```
RESULT
AOC3_R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
MEDILINE-9001041.,
Jochen A., Guven S., Hays J.;
The major integral membrane glycoprotein in adipocytes ...
The major integral membrane glycoprotein in adipocytes ...
200-kDa heterodimer.";
Mol. Membr. Biol. 12:277-281(1995).
Hol. Membr. Biol. 12:277-281 (1995).
The FUNCTION: CELL ADHESION PROTEIN THAT PARTICIPATE IN LYMPHOCYTE
TRECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO
RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO
RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO
                                                                                                                 TISSUE-Adipocyte;
MEDLINE-96010417;
                                                                                                                                           SEQUENCE OF 1-19.
                                                                                                                                                                                                                                                                                                                  15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Membrane copper amine oxidase (EC 1.4.3.6) (Vascular adhesion 1) (VAP-1) (VP97) (Fragment).
Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                   AOC 3
                                                                                                                                                                       J.
                                                                                                                                                                                                                                 STRAIN-Sprague-Dawley; TISSUE-Adipocyte; MEDLINE-97238878; PubMed-9083076;
                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                          Lienhard
                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           518
                                                                                                                                                                  embrane amine oxidase cloning and
the adipocyte plasma membrane.";
Biol. Chem. 272:9388-9392(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                   _RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EDRDCSMP-PPFSYNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HIPHSEDIPHTATPGNSVGFLLRPFNFFPEDPSLASRDTVIV-WPRDNGPNYVQ--RWIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ITWARYPLAVTKYRESELCSSSIYHQNDPWHPPVVFEQFLHNNENIENEDLVAWVTVGFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EQTQYSWERQAAFRFKRKLPKYLLFTSPQENPWGHKRSYRLQIHSMADQVLPPGWQEEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TRKLLEMEEOAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQV
::| :: | :| :| :| :| :| :| : : :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QAAACAPDLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LRHGTRLHTHLIGNIHTHLVHYRVDLDVAGTKNSFQTLQMKLENITNPWSPRHRVVQPTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FKGGFNFYAGLKGQVLVLRTTSTVYNYDYIWDFIFYPNGVMEAKMHATGYVHATFYTPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GWGLGSVTHELAPGIDCPETATFLDTFHYYDADDPVHYPRALCLFEMPTGVPLRRHFNSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DGEVDVVVLEDPLPGGKGHDSTEEPPLFSSHKPRGDFPSPIHVSGPRLVQPHGPRFRLEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGLYNVYLIPDNGTGGSWSLKSPVPP------GPAP-----PLQFYPQGPRFSVQG
                                                                                                                                                                                                           G.E.;
                                                                                                                                                                                                                     Ducret
                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                     Α.,
                                                                                                                                                                                                                                                             AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         994
                                                                                                                                                                                                                      Aebersold
                                                                                                                                                                                                                                                           PARTIAL
                                                                                                                                                                                                                                                                                             Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                      R.,
                                                                                                                                                                                            identification
                                                                                                                                                                                                                      Ross
                                                                                                                                                                                                                                                                                                                                                                                                                321
                                                                                                                                                                                                                                                                                                                                                                                                                Å
                                                                                                                                                                                                                     S
                                                                                                                                                                                                                   . A . ,
                                                                                                                                                                                                                     Keller
                                                                                                                                                                                           as
                                                                                                                                                                                                                                                                                              Euteleostomi;
Murinae; Rat
                                                                                                                                                                                           þ
                                                                                                                                                                                                                   S.R.,
                                                                                                                                                                                          major
                         TO TO TO
                                                                                                                                                                                          protein
                                                                                                                                                                                                                                                                                                                                              protein-
                                                                                                                                                                                                                                                                                              Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               254
```

```
RESULT 9
GT26_SCHJA
ID GT26_SCHJA
AC P08515;
DT 01-AUG-1988 (
DT 01-AVG-1988 (
DT 30-MAY-2000
DE Glutathione S
DE (GST class-al
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
CARBOHYD
CARBOHYD
CARBOHYD
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS: PR00766; CUNH_Oxidase.

Pfam; PF02727; Cu_amine_oxidn2; 1.

Pfam; PF02728; Cu_amine_oxidn3; 1.

PRINTS; PR00766; CUDAOXIDASE.

PROSTTE: PR0716;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oxidoreductase; Copper,
Oxidoreductase; Copper,
Oxidoreductase; Copper,
Oxidoreductase; Copper,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the
                                                                                                                                                                                                                                                267
                                                                                                                                                                                                                                                                                       503
                                                                                                                                                                                                                                                                                                                                                                              443
                                                                                                                                                                                                                                                                                                                                                                                                                         147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; U72632; AAC53189.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   between
                                                                                                                                                                                                                                                                                                                                  207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       263 QGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAA 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27
  AUG-1988 (Rel. 08, Creat
AUG-1988 (Rel. 08, Last
MAY-2000 (Rel. 39, Last
Lathione S-transferase 2
T class-alpha).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBCELLULAR LOCATION: Type II membrane protein.

PTM: Topaquinone (TPQ) is generated by copper-dependent
autoxidation of a specific tyrosyl residue (By similarity).

PTM: N- AND O-GLYCOSYLATED (BY SIMILARITY).

SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EM European Bioinformatics Institute. There are no restr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INDEPENDENT FASHION. HAS A MONOAMINE OXIDASE ACTIVITY CATALTYIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO H(2)O(2). COFACTOR: Binds 1 copper ion and 1 topaquinone per sub SUBUNIT: HOMODIMER. SUBCELLULAR LOCATION: Type II membrane protein
                                                                                                                                                                                                                                         HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RSGDGGRLSQPLHCPSVLPSVQPQTHSGQSQPFADLSPEELTAVMSFLIKHLGPGLVDAA 86
                                                                                                                                                                                                                                                                                    GRYYDSLAQLEAQFEAGLYNYVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPR
                                                                                                                                                                                                                                                                                                                                                                                                                  HPSYMRDVTVERHGGPLPYYRRPVLTREYQDIQEMIFHRELPQASGLLHHCCFYKRQGHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QARPSDNCVFSVELQLPAKAAALAHLDRGGPPPVREALAIIFFGGQPKPNVSELVVGPLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PS01164; COPPER_AMINE_OXID_1; PARTIAL.
PS01165; COPPER_AMINE_OXID_2; PARTIAL.
uctase; Copper; TPO; Given the first content of the content of 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27
136
231
293
321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A,
                                                                                                                                    STANDARD;
             08, Created)
08, Last sequence update)
39, Last annotation update)
nsferase 26 kDa (EC 2.5.1.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            >321
136
231
293
321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          institutions as long as its content atement is not removed. Usage by ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1315;
Pred. No. 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CYTOPLASMIC (POTENTIAL) SIGNAL-ANCHOR (TYPE-II (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EXTRACELLULAR (POTENTIAL)
N-LINKED (GLCNAC. . .) (P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Metal-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6B1F294253A1DE6F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                  218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                  ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32;
                         (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             per subunit
                      26)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEMBRANE PROTEIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RCHO + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   he EMBL outstation restrictions on it
                    (SJ26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              321;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                         502
                                                                                                                                                                                                                                                                                                                                                                                                                                                              442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       146
                                                                                                                                                                                                                                                                                                                                                                                                                  206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  382
                                                                                                                                                                                                                                                                                                                              266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
```

```
S
                                           Matches
                                                       Best
                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Mr 26,000 antigen of Schistosoma japonicum recognized by WEHI 129/J mice is a parasite glutathione S-transferase.", Proc. Natl. Acad. Sci. U.S.A. 83:8703-8707(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Schistosoma japonicum (Blood fluke).
Eukaryota; Metazoa; Platyhelminthes;
Schistosomatoidea; Schistosomatidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS)
MEDLINE=95276631; PubMed=7538846;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Smith D.B.,
Mitchell G.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mitchell G.F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Smith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE-87041520; PubMed-3095841;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Schistosomatoidea;
NCBI_TaxID=6182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      McTique M.A., Williams D.R., Tainer J.A.; "Crystal structures of a schistosomal drug and vaccine target: glutathione S-transferase from Schistosoma japonica and its co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       transferase fused with a six-amino epitope of gp41 from HIV."; protein Sci. 3:2233-2244(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Carter D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REVISIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lim K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Proc. Natl.
                                                                                                                                                                                                                                                                                                                                                                                                                    - - -
                                                                                                                                                                                                                                                                                            the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                            ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-95156484; PubMed-7853399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            x-RAY CRYSTALLOGRAPHY (2.6 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Three-dimensional structure
                                                                                                                                                                                                                                                                               or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                     EMBL;
                                                                                                              Transferase;
                                                                                                                                                   InterPro;
                                                                                                                                                                    [nterPro;
               38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOL.
                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.
FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN THE
PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO
                                                                              Pro; IPROUSU.; 1.
(; PF00043; GST_C; 1.
m; PF02798; GST_N; 1.
m; PF02798; Antigen; Multigene f
                                                                                                                                                                                                                                                                                                                                                                                                                                            SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY HAEMATIN IN THE PARASITE GUT.
CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the leading antischistosomal drug praziquantel.";
fol. Biol. 246:21-27(1995).
FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER
                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                      MISCELLANEOUS: THERE ARE AT LEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBUNIT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D.B., Davern K.M.,
                                                                                                                                                                                                                                        A26484; A26484
SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                  M14654;
                                                                                                                                                                                                                                                                                                                                                                                                          .JAPONICUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ho J.X., Keeling K.,
                                                      Similarity
                                                                                                                                                   IPR004046; GST_Cterm.
IPR004045; GST_Nterm.
                                                                                                                                                                                30-NOV-94.

07-FEB-95.

01-DEC-95.

12-APR-99.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Davern K.M., Board P.G., Tiu W.U., Garcia
                                                                                                                                                                                                                                                                                                                                                                                                                                    HOMODIMER
                                           Conservative
                                                                                                                                                                                                                                                      AAB59203.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sci.
                                                       21.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Board
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  e
E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gilliland G.L.,
                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84:6541-6541(1987)
                                                       Score 1144;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P.G.,
                                                                                                 s family; 3D-structure.
5E2AC418BD0EF13F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Schistosoma japonicum
ino acid conserved neut
                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tiu W.U.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Trematoda; Digenea; Strigeidida; Schistosoma.
                                                                                                                                                                                                                                                                                                                                                                                                                        OWI
                                                         DB 1;
1.6e-78;
                                                                                                                                                                                                                                                                                                                                                                                                                        ISOENZYMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                  HX + R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ji X.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Garcia
                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     neutralizing
                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ruker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E.G.
                                                                                                                                                                                                                                                                                                                                                                                                                        QF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               П
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
ດ
                                                                       218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 resistant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'TJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complex
                                             0
                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                     97
                                               0
```

Š ₽

98

DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD

157 61

N

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
GT27_SC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
           S
                                          Matches
                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SCHMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUN-1994 (Rel. 29, Created)
01-JUN-1994 (Rel. 29, Last sequence up
01-NOV-1995 (Rel. 32, Last annotation
Glutathione S-transferase 26 kDa (EC antigén) (GST class-alpha)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GT27_SCHMA
P35661;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-92131046; PubMed-1775156;
Wright M.D., Harrison R.A., Melder A.M., Newport G.R., Mitchell
"Another 26-kilodalton glutathione S-transferase of Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Platyhelminthes; Schistosomatoidea; Schistosomatidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Schistosoma mansoni (Blood fluke)
                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a between the Swiss Institute of Bioinformatics and the EMBI the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and it modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               manson1."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. MEDLINE-92131046;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=6183;
                                                                                                                                                                                  EMBL; M73624; -; NOT_ANNOTATED_CDS.
PIR; A45556; A45556.
HSSP; P08515; 1GTA.
                                                                                                                             Pfam; PF00043; GST_C; Pfam; PF02798; GST_N;
                                                                                                                                                                                                                                        entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122 FLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKK
                                                                                                 SEQUENCE
                                                                                                            Transferase;
                                                                                                                                                      InterPro; IPR004046; GST_Cterm InterPro; IPR004045; GST_Nterm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N
              38
                                                                                                                                                                                                                                                                                                                                                      OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.
FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN TH
PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO
SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF
HAEKATIN IN THE PARASITE GUT.
CATALYTIC ACTIVITY: RX + glutathione - HX + R-S-glutathione.
SUBUNIT: HOMODIMER.
SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FLSKLÞEMLKMFEDRLSHKTYLNGDHVTHÞDFMLYDALDVVLYMDÞMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                          180;
                                                         Similarity
                                                                                                  218 AA;
                                          Conservative
                                                                                                            Antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                       18:4%; 82.9%;
                                                                                                    25411
                                                                                                                 Multigene
                                                                                                    ₩;
                                            19;
                                                       Score 985; DB 1;
Pred. No. 1.3e-66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                  p family.
D8D3EE9028B36185 CRC64;
                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          on_update); 2.5.1.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Trematoda;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ξ
                                             18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Digenea;
                                                                     Length
                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26)
                                                                                                                                                                                                                                                                                                    restrictions on
                                                                         218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SM26/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Strigeidida;
                                                                                                                                                                                                                                                                                                                     EMBL outstation
                                             0;
                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                       collaboration
- contstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   G.F.;
                                                                                                                                                                                                                                                                           in no way commercial
                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                157
                                                0
```

```
RESULT
GT26_SC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                EMBL; M31106; AAA29888.1;
EMBL; M26913; AAA29889.1;
PIR; A45523; A45523.
HSSP; P08515; IGTA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P15964;
01-APR-1990
                                             InterPro; IPR004045; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Henkle K.J., Davern K.M., Wright M.D., Ramos A.J., Mitchell G.F.; "Comparison of the cloned genes of the 26- and 28-kilodalton "Comparison of the cloned genes of Schistosoma japonicum and Schistosom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-Puerto Rican;
MEDLINE-90271935; PubMed-1693415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Trottein F., Kieny M.P., Verwaerde C., Torpier G
Balloul J.-M., Schmitt D., Lecocq J.-P., Capron,
"Molecular cloning and tissue distribution of a
Schistosoma mansoni glutathione S-transferase.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN-Puerto Rican;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Schistosoma mansoni (Blood fluke).
Eukaryota; Metazoa; Platyhelminthes;
Schistosomatoidea; Schistosomatidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=90348716; PubMed=2385266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-ARR-1990 (Rel. 14, Last sequence update) 01-NOV-1995 (Rel. 32, Last annotation update Glutathione S-transferase 26 kDa (EC 2.5.1. antigen) (GST class-alpha)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 8-218 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SCHMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MO1. Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=6183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                     CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-glutathione.
SUBUNIT: HOMODIMER.
TISSUE SPECIFICITY: TEGUMENT AND IN SUBTEGUMENTARY PARENCHY
CELLS. GST 26 MAY BE ACTIVELY EXCRETED BY ADULT WORMS.
MISCELLANEOUS: THERE ARE AT LEAST THREE ISOENZYMES OF GST IN
                                                                                                                                                                                                                                                                                                                                                                                                      Biochem. Parasitol. 40:23-34(1990).

FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDRODHOBIC ELECTROPHILES.

FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN THE PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF HARMATIN IN THE PARASITE GUT.
                                                                                                                                                                                                                                                                                            S.MANSONI.
SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RIENLPPIKNYLNSNRYIKWPLQGWSATFGGGDAPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                    PF00043; GST_C; PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SCHMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FLNQLPGMLKMFEDRLSHNTYLNGDKVTHPDFMLYDALDVVLYMDPKCLDNFPKLISFKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DVKLTQSMAILRYIADKHNMLGGCPKERAEISMLEGAILDIRYGVSRIAYNKEFETLKVD
   Antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Parasitol. 41:35-44(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
1.
Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                            THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            hnotation update) kDa (EC 2.5.1.18)
                                                                                                                                                                                                                                                                                        GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                   AND IN SUBTEGUMENTARY PARENCH
EXCRETED BY ADULT WORMS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Trematoda;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Torpier G., Pierce R.J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Digenea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26-kilodalton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26)
                                                                                                                                                                                                                                                                                                                                                       PARENCHYMAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (SM26/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Strigeidida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
```

```
RESULT
GREEN
ID
GREEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    So
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                         EMBL;
HSSP;
                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Enthe European Bioinformatics Institute. There are no rest:
                                                                                                              use by non-profit institutions as long modified and this statement is not removed entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fasciola hepatica (Liver fluke).
Eukaryota; Metazoa; Platyhelminthes; Trematoda; Digenea;
Echinostomida; Echinostomata; Fascioloidea; Fasciolidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-DEC-1998
15-DEC-1998
15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FASHE
                                                                                             or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patent number WO9008819,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Crameri S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Panaccio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Panaccio M., Wilson L.R., Crameri S.:
"Molecular characterization of cDNA;
transferases of Fasciola hepatica.";
Exp. Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE-92155306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              class-alpha).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-94039664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P56598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                   FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.
FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN THE PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF HAEMATIN IN THE PARASITE GUT.
CAPALYTIC ACTIVITY: RX + glutathione - Hx + R-S-glutathione. SUBBNIT: HOMODIMER.
SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Parasitol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CIEDLPQIKNYLNSSRYIKWPLQGWDATFGGGDTPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FASHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FINKLPGRIKMFEDRISNKTYLNGNCYTHPDFMLYDALDVYLYMDSQCINEFPKLYSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DFKLTQSMAIIRYIADKHNMLGACPKERAEISMLEGAVLDIRMGVLRIAYNKEYETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                            P31670;
                                              A00993; CAA00118.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APKFGYWKVKGLVQPTRLLLEHLEETYEERAYDRNEIDAWSNDKFKLGLEFPNLPYYIDG
                                                                                             an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 80.: 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç
IPR004046; GST_Cterm
                                                                                        email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 (Rel. 37, Creat
8 (Rel. 37, Last
8 (Rel. 37, Last
8 (Rel. 37, Last
e S-transferase 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22-220 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wilson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4; PubMed=8224094;
lson L.R., Crameri
77:385-385(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=1740183;
on L.R., Cramer1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25401 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               09-AUG-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         t sequence update)
t annotation update)
26 kDa 1 (EC 2.5.1.18) (GST1) (FH1) (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 922; DB
Pred. No. 6.9e
15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             061A6548A842D6E8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s.L., Wijffe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 220
                                                                                                           (See http://www.isb-sib
                                                                                                                                                     There
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wijffels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wijffels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
.9e-62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         els G.L.,
encoding
                                                                                                                                                   are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      G.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                          restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Spithill T.W.;
glutathione S-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Spithill T.W.;
                                                                                                                                   and
                                                                                                                                                                                                  EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fasciola
                                                                                                                                                                                                  a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                         .ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97
                                                                                                                                                     90 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
SETTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Transferase;
INIT_MET
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
Pfam; PF00
Pfam; PF02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CONFLICT
*Crystallization, structural determination and analysis of a parasite vaccine candidate: Fasciola hepatica glutathione S-transferase.",
J. Mol. Biol. 273:857-872(1997).
-i- FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NU-
-i- FUNCTION: CONJUGATION SYSTEM. OTHER FUNCTIONS ARE ALSO
PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO
                                                                                                                                                                                                                                                                                                                                                        01-JUL-1993 (Rel. 26, Crea
15-DEC-1998 (Rel. 37, Last
15-DEC-1998 (Rel. 37, Last
Glutathione S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                             MEDLINE-94039664; PubMed-8224094; Panaccio M., Wilson L.R., Crameri Exp. Parasitol. 77:385-385(1993).
                                                                                                                                                                                                                                Panaccio M., Wilson L.R., Crameri S.L., Wijffels G.L., "Molecular characterization of CDNA sequences encoding transferases of Fasciola hepatica."; Exp. Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                                                                                            (GST class-alpha).
Fasciola hepatica (Liver fluke).
Eukaryota; Metazoa; Platyhelminthes; Trematoda;
Echinostomida; Echinostomata; Fascioloidea; Fasi
                                                                                  x-RAY CRYSTALLOGRAPHY (3 ANGSTROMS).
MEDLINE=98035725; PubMed=9367777;
Rossjohn J., Fell S.C., Wilce M.C.J.
Parker M.W.;
                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A. MEDLINE-92155306; Pubmed-1740183;
                                                                                                                                                Crameri S.
                                                                                                                                                           SEQUENCE OF
                                                                                                                                                                                                              ERRATUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101
                                                                                                                                     Patent number WO9008819,
                                                                                                                                                                                                                                                                                                     NCBI_TaxID=6192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                                                                                                                                                                                               183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41
                                                                                                                                                                                                                                                                                                                                                                                                            _FASHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pF00043; GST_C;
pF02798; GST_N;
sferase; Antigen; |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPKSQSQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              al Similarity
129; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALPSIKAYMESNRFIKWPLNGWHAQFGGGDAPPSHEKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR004045; GST_Nterm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22
110
189
                                                                                                                                                                                                                                                                                                                                                                   (Rel. 26, Created)
(Rel. 37, Last sequence unit (Rel. 37, Last annotation)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                           7-105 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ጀ
                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
22
111
189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Multigene BY S
0 BY S
1 DP ->
1 A -> 1
598 MW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25598 MW;
                                                                                             Wilce M.C.J.,
                                                                                                                                      09-AUG-1990
                                                                                                                                                                                                                                                                                                                                                            26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 719.5;
Pred. No. le-
                                                                                                                                                                                                                                                                                                                                                            kDa 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          , , ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         p -> VS (IN REF. 3).

-> p (IN REF. 3).

27B9F150B75D101F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               family
                                                                                                                                                                                        S.L.,
                                                                                                                                                                                                                                                                                                                                                         update)
on update)
(EC 2.5.1.18) (GST47) (FH47)
                                                                                                                                                                                                                                                                                                                                                                                                                217
                                                                                              Sexton J.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             le-46;
                                                                                                                                                                                         Wijffels G
                                                                                                                                                                                                                                                                                                                                                                                                                ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 3).
3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    258
                                                                                                                                                                                                                                                                                                                   Fasciolidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   54;
                                                                                                                                                                                                                                                                                                                            Digenea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                         .L.,
                                                                                              Spithill T.W.,
                                 A WIDE NUMBER
                                                                                                                                                                                                                                                     Spithill T.W.;
glutathione S-
                                                                                                                                                                                         Spithill T
                                                                                                                                                                                                                                                                                                                     Fasciola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ۲
```

```
GT28_FASHE
ID GT28_FASHE
ID GT28_FASHE
AC P31671;
DT 01-JUL-1993 (
DT 15-DEC-1998 (
DT 15-DEC-1998 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ωy
       Query Match
Best Local S
Matches 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transferase;
INIT_MET
CONFLICT
CONFLICT 1
SEQUENCE 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPRO04046; GST_Cterm.
InterPro; IPRO04045; GST_Nterm.
pfam; PF00043; GST_C; 1.
pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; M77681; AAA29140.1; -. EMBL; A00996; CAA00121.1; -.
                                                                     Panaccio M., Wilson L.K., CALLER Panaccio M., Wilson L.K., CALLER PANACCE PANA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PDB; 1FHE;
MEDLINE-94039664; Pu
                                                                                                                                                                                                                                     Fasciola hepatica (Liver fluke).
Eukaryota; Metazoa; Platyhelminthes; Trematoda;
Echinostomida; Echinostomata; Fascioloidea; Fasc
                                                                                                                                                                                                                                                                                                 class-alpha).
                                                                                                                                                                                                                                                                                                               Glutathione
                                                                                                                                                             SEQUENCE FROM N.A. MEDLINE-92155306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUSPECTED INCLUDING A ROLE IN INCREASING THE HAEMATIN IN THE PARASITE GUT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KLPEMIKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LTQSVAIMRYIADKHGMLGTTPEERARISMIEGAAMDLRIGFGRVCYNPKFEEVKEEYVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
65
102
217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-JUL-98.
                                                                                                                                                                                                                                                                                                       (Rel. 26, Created)
(Rel. 37, Last sequence update)
(Rel. 37, Last annotation update)
(Rel. 37, East annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>Α</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
65
105
25281 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
         PubMed-8224094;
on L.R., Crameri
                                                                                                                                                               PubMed-1740183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Multigene family; 3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T -> I (IN REF. 3).
RIGF -> FEEL (IN REF. 3).
; OFB8BBFE63029E03 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3 708; DE NO. 7.3e-46; 52
           S.L.,
                                                                                                                                             .L.,
                                                                                                                         sequences
                                                                                                                                                                                                                                                                                                                                                                                                                  217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                216
           Wijffels
                                                                                                                                             Wijffels
                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
•-
                                                                                                                                                                                                                                           pda; Digenea;
Fasciolidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  + R-S-glutathione
                                                                                                                             encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOLUBILITY
                                                                                                                                           G.L.,
           ດ
                                                                                                                                                                                                                                                                                                                     (GST7)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
           . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               217;
           Spithill
                                                                                                                           Spithill T.N
glutathione
                                                                                                                                                                                                                                                                                                                       (FH7)
                                                                                                                                                                                                                                               Fasciola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ဝှု
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                220
                                                                                                                               ς.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
RESULT
GT26_F/
                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 125
                                                    Eukaryota; Metazoa; Platyhelmi
Echinostomida; Echinostomata;
                                                                                                      01-APR-1993 (Rel. 25, Crea
15-DEC-1998 (Rel. 37, Last
15-DEC-1998 (Rel. 37, Last
Glutathione S-transferase
 SEQUENCE FROM N.A. MEDLINE-92155306;
                                                                                 Fasciola hepatica
                                                                                                                                                  01-APR-1993
                                                                                                                                                                  P30112;
                                                                                                                                                                             GT26_FASHE
                                                                                                                                                                                              FASHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent number WO9008819, 09-AUG-1990.

-I- FUNCTION: CONNUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.

-I- FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN THE PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Transferase; Antigen; Multigene family.

INIT_MET

0

0

NEXTMIL-ARITY.

CONFLICT

186

196

IKEYMKSER -> SRYMSRA (IN

SEQUENCE

217 AA; 25196 MW; 0099E1F59E49A49E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; M77680; AAA29139.1; -. EMBL; A00994; CAA00119.1; -. HSSP; P31670; 1FHE.
                                                                                           (GST class-alpha).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPRO04045; GST_Cterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HAEMATIN IN THE PARASITE GUT.

-I- CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-glutathion
-I- SUBUNIT: HOMODIMER.

-I- SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Piam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 8-217 FROM
                                                                                                                                                                                                                                                          221 AIPQIDKYLKSSKYIAWPLOGWQATFGGGDHPP
:|:|:|:|:|:|| ::| ||| | : |||||| ||
                                                                                                                                                                                                                                                                                                      124
                                                                                                                                                                                                                                                                                                                               161
                                                                                                                                                                                                                                                  184
                                                                                                                                                                                                                                                                                                                                                                                   101
                                                                                                                                                                                                                                                                                                                                                          64
                                                                                                                                                                                                                                                                                                                                                                                                                                        41
                                                                                                                                                                                                                                                                                                                                                                                                             4
                                                                                                                                                                                                                                                                                              GLPTTLKMWSDFLGDRQYLIGSSVSHVDFMVYEALDCIRYLAPQCLDDFPKLKEFKSRIE
                                                                                                                                                                                                                                                                                                                                                                                                                               LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK
                                                                                                                                                                                                                                                                                                              KLPEMIKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCIDAFPKLVSFKKRIE
                                                                                                                                                                                                                                              DLPKIKEYMKSERFIKWPLHSWTSPFGGGDAPP
                                                                                                                                                                                                                                                                                                                                                  LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS
                                                                                                                                                                                                                                                                                                                                                                                                       al Similarity
125; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                             STANDARD;
                                                                                           . 25, Createo;
. 37, Last sequence update;
L. 37, Last annotation update
ransferase 26 kDa 51 (EC 2.5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77:385-385(1993).
                                    (Liver fluke).
Da; Platyhelminthes; Trematoda;
Pascioloidea; Fascioloidea; Fascioloidea;
PubMed=1740183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 690; Db 1,
                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                        on update)
(EC 2.5.1
                                                                                                                                                                           217
                                                                                                                                                                                                                                                                      253
                                                                                                    2.5.1.18) (GST51) (FH51)
                                                                                                                                                                          ጅ
                                                 Fasciolidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              58;
                                                             Digenea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REF.
                                                 Fasciola
                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                            160
                                                                                                                                                                                                                                                                                                                                                                                                                                 100
                                                                                                                                                                                                                                                                                                                                                  123
                                                                                                                                                                                                                                                                                                                                                                                                       63
                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
QΥ
                                                                                         밁
                                                                                                                                Ş
                                                                                                                                                                                밁
                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                       닭
                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                  CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; M77682; AAA29141.1; -. HSSP; P31670; IFHE. InterPro; IPR004046; GST_Cterm. InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Enthe European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entities requires a license agreement (Some send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     use by non-profit institutions as long a modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA clone.";
Am. J. Trop. Med. Hyg. 48:457-463(1993).
-i- FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=93228188; PubMed=7682383;
Muro A., Rodriguez-Medina J.R., H
"Sequence analysis of a Fasciola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-94039664; PubMed-8224094; Panaccio M., Wilson L.R., Crameri Exp. Parasitol. 77:385-385(1993).
    184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 9-217 FROM N.A
                                                221
                                                                                         124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- CATALYTIC ACTIVITY: RX + glutathione = HX +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Panaccio M., Wilson L.R., Crameri S.L., Wijffels G.L., "Molecular characterization of cDNA sequences encoding
                                                                                                                                    161
                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transferases of
                                                                                                                                                                                64
                                                                                                                                                                                                                                                                                                  41 LGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK 100
                                                                                                                                                                                                                                                           SUBCELLULAR LOCATION: Cytoplasmic.
SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.
FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE
PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALL
GICCOPPORTED TAXABLE CONTRACTOR OF THE PARASITE OF TAXABLE CONTRACTOR OF TAX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUSPECTED INCLUDING A ROLE IN INCREASING HAEMATIN IN THE PARASITE GUT.
DLPKIKAYMESEKFIKWPLNSWIASFGGGDAAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC
                                         AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP
                                                                                ELPTTLKMWSNFLGDRHYLTGSPVSHVDFMVYEALDCIRYLAPQCLEDFPKLKEFKSRIE
                                                                                                                         KLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIE 220
                                                                                                                                                                    LTQSVAIMRYIADKHGMLGTTPEERARISMIEGAAMDLRMGFVRVCYNPKFEEVKGDYLK 123
                                                                                                                                                                                              LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PF00043; GST_C;
PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Antigen; 0 0 0 83 82 134 134 134 146 14 217 AA; 2
                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                         0
83
134
146
25242 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fasciola hepatica."; 74:232-237(1992).
                                                                                                                                                                                                                                                                                                                                                                         12.9%;
58.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Multigene family.
0 BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                              MW.
                                                                                                                                                                                                                                                                                                                                                         33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ч т ч
- ч ч
- ч ч ч ч
                                                                                                                                                                                                                                                                                                                                                                            Score 689;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                            EFCA8FF7454EDC26
                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hillyer
                                                                                                                                                                                                                                                                                                                                                                                                                                                              S (IN REF.
D (IN REF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hillyer G.
hepatica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (See http://www.isb-sib.ch
                                         253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wijffels G.L.,
                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                            .9e-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . v
. ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      glutathione S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 THE
                                                                                                                                                                                                                                                                                                                                                       55,
                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                            CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOLUBILITY
                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A WIDE NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            restrictions
                                                                                                                                                                                                                                                                                                                                                                                              217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  spithill T.W.;
glutathione S-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Spithill T.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALSO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          H
                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   outstation
                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     commercia
                                                                                183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Way
                                                                                                                                                                                                                                                                                                                                                0
```

Search completed: May Job time: 28.557 sec:

20,

```
Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Perfect score:
                                                                                                                                                                                                   Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    on:
                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                               3405
3370
1404.5
1032
1029
721
707
649
615.5
518.5
513.5
513.5
507.5
503.5
484.5
                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length: 0
length: 2000000000
                                                                                                                                                                                       Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-081-408-20
5357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MDWLRNLLFLMAAAQSINAA.....QAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                      10:
11:
12:
13:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  May 20, 2003, 10:12:24 ; Search time 68.8588 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPTREMBL_21:*
 9.04
9.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                 sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                            sp_archea:*
sp_bacteria:*
                                                                                                                                                                                                                                                                                        sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                             sp_organelle:*
                                                                                                                                                                                                                                                                                                                                                                                                      sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                   sp_mammal:*
                                                                                                                                                                                                                                                                                                                                                                                                                            sp_invertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                         sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                  sp_fungi:*
                                                                                                                                                                                                                                                                                                                                              sp_rodent:*
sp_virus:*
                                                                                                                                                                                                                                                                                                                                      sp_vertebrate:*
                                                                                                                                                                                                                                                                                                                          sp_unclassified:*
                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                    p_plant:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gapext 0.5
                                                                                                                                                                                        BB
                                           Q9TTK6
1 Q9R055
1 Q8VC36
1 Q8R229
 Q94745
 Q25595
 Q98XL9
 Q96X16
          Q920K6
Q9N0V4
Q90WM9
Q9R516
Q9R517
Q9TSM5
Q9TSM5
                                                                                                                                                                                        Ħ
                                                                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (without alignments)
2986.328 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     671580
     096x16 pichia past
0920k6 cavua porce
0900v4 bos taurus
090wm9 xenopus lae
08r516 mus musculu
097117 boophilus m
09tsm5 macaca fasc
09tsm4 macaca fasc
                                                                                               Q8vc36 mus musculu
Q8r229 mus musculu
Q94745 schistosoma
Q25595 clonorchis
Q9xyl9 fasciola gi
                                                                                                                                                                 Q9ttk6 bos taurus
                                                                                                                                                                                       Description
                                                                                                                                                      Q9r055 mus musculu
```

45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
30	. 335.5	38	339	350	353	353.5	357	357.5	358	368.5	72	381	386.5	388	415.5	യ	440.5	\vdash	w	o	55	N	63	63	64	468.5	72	•
					6.6										7.8													
220	422	1794	735	181	649	650	194	756	64	660	668	654	219	741	188	195	225	232	220	225	225	219	219	218	218	218	204	218
v	10	10	10	4	10	10	4	10	4	17	10	16	տ	10	6	4	11	11					Ŋ	11	11	11	11	11
Q8T7E4	Q9C6W1	Q9SI68	Q9SW88	Q8TC98	Q8W1C1	023349	Q9НВМ7	Q9STI2	Q9UEU7	Q97XM1	048552	Q989X2	Q9U582	Q9C6V7	Q9MZB4	Q05465	Q9Z1B2	Q9D5J8	Q8WWE1	Q9BEA9	096HA3	016058	Q27653	Q9DD25	Q9DCE8	Q9WU21	Q9CW16	Q91Y83
Q8t7e4 boophilus m				08tc98 homo sapien	1 bra	ara	-	ara	:7			N	Q9u582 psoroptes o	Q9c6v7 arabidopsis	Q9mzb4 capra hircu	Q05465 homo sapien	rat	Q9d5j8 mus musculu	Q8wwel homo sapien	aca	Q96ha3 homo sapien	O16058 echinococcu	Q27653 echinococcu	5 mus	Q9dce8 mus musculu	Q9wu21 rattus norv	5 mus mu	Q91y83 cavia porce

ALIGNMENTS

```
RESULT 1
Вb
                                                                      8
                                                                                                                                                                                                                                                                                                                            SOUR REPRESENTATION OF THE PROPERTY OF THE PRO
                                                                                                                                                 Query Match 63.6%;
Best Local Similarity 85.1%;
Matches 626; Conservative 44
                                                                                                                                                                                                                                                                                                                                                                                       Bovine aorta.";

Submitted (OCT-1998) to the EMBL/GenBank/DDBJ databases.

EMBL; AB019242; BAA88896.1; -

Interpro; IPR000269; CUNH_Oxidase.

Pfam; PF01179; CU_amine_Oxid; 1.

Pfam; PF02727; CU_amine_OxidN2; 1.

Pfam; PF02728; CU_amine_OxidN3; 1.

PRINTS; PR00766; CUDAOXIDASE.

PROSITE; PS01164; COPPER_AMINE_OXID_1; UNKNOWN_1.

PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9TTK6 PRELIMINARY; PRT; 763 AA.

Q9TTK6;
01-MAY-2000 (TTEMBLrel. 13, Created)
01-MAY-2000 (TTEMBLrel. 13, Last sequence update)
01-MAR-2002 (TTEMBLrel. 20, Last annotation update)
Semicarbazide-sensitive amine oxidase (EC 1.4.3.6).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea Bovidae; Boyinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SSAO
                                                                                                                                                                                                                                                                                                                        Oxidoreductase.
SEQUENCE 763 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bos taurus (Bovine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Iwabuki H., Matsumura K., Mure M., Kuroda S., Molecular Cloning of semicarbazide-sensitive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=9913;
                                                                               263
28
                                     QGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAA 322
RGGDGGEASQPHYCPSGTPSVQPWTHPGQNQLFADLSREELTAVMSFLTQKLGPDLVDAA 87
                                                                                                                                                                                                                                                                                                                            84500 MW;
                                                                                                                                                              Score 3405; DB 6;
pred. No. 9.5e-267;
44; Mismatches 66;
                                                                                                                                                                                                                                                                                                                            DB61ED9A89E71E90 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tanizawa K.;
amine oxidase
                                                                                                                                                                                                                                         Length 763;
                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bovoidea;
                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from
```

0

```
Ŷ
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                 50
                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ρŅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                     В
WA Moldes M., Feve B., Pairault J.,

"Molecular cloning of a major mRNA species in murine 3T3 adiport

"Inneage. differentiation-dependent expression, regulation, and

Indentification as semicarbazide-sensitive amine oxidase.",

J. Biol. Chem. 274:9515-9523(1999).

-i- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O^^^.
                                                                                                                               O9R055 PRELIMINARY; PRT; 765 AA. O9R055; PRELIMINARY; PRT; 765 AA. O1-MAY-2000 (TrEMBLrel. 13, Created) O1-MAY-2000 (TrEMBLrel. 13, Last sequence up O1-MAR-2002 (TrEMBLrel. 20, Last annotation Copper amine oxidase (EC 1.4.3.6).
                                                                                                      Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                        748
                                                                                                                                                                                                                                      889
                                                                                                                                                                                                                                                       889
                                                                                                                                                                                                                                                                                                      863
                                                                                                                                                                                                                                                                                                                       568
                                                                                                                                                                                                                                                                                                                                                                     743
                                                                                                                                                                                                                                                                                                                                                                                       448
                                                                                                                                                                                                                                                                                                                                                                                                      683
                                                                                                                                                                                                                                                                                                                                                                                                                     388
                                                                                                                                                                                                                                                                                                                                                                                                                                      623
                                                                                                                                                                                                                                                                                                                                                                                                                                                     328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  323
                                                                                                                                                                                               N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                      GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                                                                                                                                                                                                                    LVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN
                                                                                                                                                                                                                                                                                                                              LLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LVTMTTAPRGLQSGDRATWFGLYYNISGAGYYLHPVGLELLVDHKALDPAQWTIQKVFFQ
                                                                                                                                                                                                                                                                                                                     QLETEEQAAFPLGGASPRYLYLASKQSNKWGHPRGYRIQTVSFAGRPLPQNSSTERAISW
                                                                                                                                                                                                                                                                                                                                                      GNQVRENTLGTVHTHSAHYKVDLDVGGLENWVWAEDMAFVPTTVPWSPEHQIQRLQVTRK
                                                                                                                                                                                                                                       998
                                                                                                       Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                       Muridae;
                                                                                                                                              update)
                                                                                                       Euteleostomi;
; Murinae; Mus
                                               adipocyte
n, and
                                                                                                                                                                                                                                                                     982
                                                                                                                                                                                                                                                                                                                                      862
                                                                                                                                                                                                                                                                                                                                                                     802
                                                                                                                                                                                                                                                                                                                                                                                                   742
                                                                                                                                                                                                                                                                                                                                                                                                                    447
                                                                                                                                                                                                                                                                                                                                                                                                                                     682
                                                                                                                                                                                                                                                                                                                                                                                                                                                     387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  147
                                                                                                                                                                                                                                                                                                                      627
                                                                                                                                                                                                                                                                                                                                                                                      507
```

```
RESULT 3
Q8VC36
ID Q8VC36
                                                                              밁
                                                                                              δÃ
                                                                                                                망
                                                                                                                              Q
                                                                                                                                                   В
                                                                                                                                                                  Ş
                                                                                                                                                                                     B
                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SON DER DER DER DER SON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PRINTS: PR00766; CUDAOXIDASE.
PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
COPPET; OXIdOTEGUCTASE; TPQ.
SEQUENCE 765 AA; 84534 MW; 4252854759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SIMILARITY: BELONGS TO 7
EMBL; AF115411; AAD09199.1;
MGD; MGI:1306797; Aoc3.
InterPro; IPR000269; CUNH_0
                                                                                                                                                                                                                                                                                                                                                                                    443
                                            748
                                                             983
                                                                               883
                                                                                                                  628
                                                                                                                                  863
                                                                                                                                                    568
                                                                                                                                                                     803
                                                                                                                                                                                      508
                                                                                                                                                                                                       743
                                                                                                                                                                                                                         448
                                                                                                                                                                                                                                           683
                                                                                                                                                                                                                                                            388
                                                                                                                                                                                                                                                                            623
                                                                                                                                                                                                                                                                                              328
                                                                                                                                                                                                                                                                                                              563
                                                                                                                                                                                                                                                                                                                                268
                                                                                                                                                                                                                                                                                                                                                503
                                                                                                                                                                                                                                                                                                                                                                  208
                                                                                                                                                                                                                                                                                                                                                                                                    148
                                                                                                                                                                                                                                                                                                                                                                                                                       383
                                                                                                                                                                                                                                                                                                                                                                                                                                                         323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           263
                                                                                                                                                                                                                                                                                                                                                                                                                                        88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity 83.1
les 611; Conservative
                                          CAPDLPAFSHGGFSH (
                                                                                                                                                                                                                                                                                                                               QGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAA
                                                                                                                GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                                                       LVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQ
                                                                                                                                                                                                                                                                                                                                                                                                    QARPSDNCVFSVELQLPAKAAALAHLDRGGPPPVREALAIIFFGGQPKPNVSELVVGPLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                 QARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RSGDGGGLSQPLHCPSVLPSVQPRTHPSQSQPFADLSPEELTAVMSFLTKHLGPGLVDAA
                                                                                                                                                            LLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSW
                                                                                                                                                                                     AEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA
                                                                                                                                                   LLTMTTAPRGLQSGDRATWFGLYYNLSGAGFYPHPIGLELLIDHKALDPALWTIQKVFYQ
                                                                               AED
                                                                              62.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CuNH_oxidase.
                                            762
                                                              997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 3370; DB 11;
Pred. No. 6.5e-264;
1; Mismatches 63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4252854759F316C7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COPPER/TOPAQUINONE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                   502
                                                                                                                                                                                                                                                                                                                                                                                                                                        147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           87
                                                                                                                                                    627
                                                                                                                                                                                                       802
                                                                                                                                                                                                                         507
                                                                                                                                                                                                                                                          447
                                                                                                                                                                                                                                                                            682
                                                                                                                                                                                                                                                                                              387
                                                                                                                                                                                                                                                                                                             622
                                                                                                                                                                                                                                                                                                                               327
                                                                                                                                                                                                                                                                                                                                                                  267
                                                                                                                                                                                                                                                                                                                                                                                                    207
                                                                                                                 687
                                                                                                                                                                                      567
```

PRELIMINARY;

PRT;

751 ₹

```
. B
                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  рЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                       Ş
 밁
                       Ş
                                                 멍
                                                                      Š
                                                                                                      В
                                                                                                                           Ş
                                                                                                                                                В
                                                                                                                                                                                   δÃ
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 298; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               O8VC36;

O1-MAR-2002 (TrEMBLrel. 20, Created)

O1-MAR-2002 (TrEMBLrel. 20, Last sequence up

O1-JUN-2002 (TrEMBLrel. 21, Last annotation

Similar to amiloride binding protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01179; Cu_amine_oxid; 1.

Pfam; PF02727; Cu_amine_oxidN2; 1.

Pfam; PF02728; Cu_amine_oxidN3; 1.

PROSITE; PS00211; ABC_TRANSPORTER; UNKNOWN_1.

PROSITE; PS01164; COPPER_AMINE_OXID_1; UNKNOWN_1.

PROSITE; PS01165; COPPER_AMINE_OXID_2; UNKNOWN_1.

PROSITE; PS01165; COPPER_AMINE_OXID_2; UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted JAN-2002) to the EMBL/GenBank/DDBJ EMBL; BC021880; AAH21880.1; .
InterPro; IPR001439; ABC_transportr.
InterPro; IPR000269; CuNH_oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=10090;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Strausberg R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE=COLON;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                          137
                                                                                                                                                                                                                                                                                                                                               512
                                                                                                                                                                                                                                                                                                                                                                           191
                                                                                                                                                                                                                                                                                                                                                                                                                                                       400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            340
                                                                                                      483
                                                                                                                                                           423
                                                                                                                                                                                       671
                                                                                                                                                                                                              363
                                                                                                                                                                                                                                         611
                                                                                                                                                                                                                                                                   303
                                                                                                                                                                                                                                                                                            553
                                                                                                                                                                                                                                                                                                                      249
                                                                                                                                 728
 603
                          848
                                                    543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19
                                                                                                                                                                                                                                                               TPSAVTTPH-DKARIFADLSPQEIKAVHSFLMSRKELGLESSKNLTLAKNSVFLIEMLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPSAQPWTHPGGSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLP 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                     PYHRRPVLEQEYLDIDOMIFNRELPQASGLLHHCCFYKHRG-----RNLVTMTTAPR 451
                                                                                                                   GYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVP 787
                                                                                                                                                                                                                                                                                                                                                 LEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPG-PAPPL-----OFY-----
                                                                                                                                                                                                                                                                                                                                                                                                                              SWSSRPISTAEY-DLLYHMLNRAITPL----HQFFLDTTGFSFLGCDDRFLTFTDVAPR
WSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAG
                                                                                                        GYVHATFYTPEGLRHGTRLQTHLLGNIHTHLVHYRVDLDVAGTKNSFRTLKTKLENITNP
                                                                                                                                                           TGVPLRRHFDSNFKGGFNFYAGLKGYVLVLRTTSTVYNYDYIWDFIFYPNGVMETKMHAT
                                                                                                                                                                       QGLPLRRHHSDLYS---HYFGGLAETVLVVRSMSTLLNYDYVWDIVFHPSGAIEIRFYAT 727
                                                                                                                                                                                                                 TPAGMQTKYIDVGWGLGSVTHELAPGIDCPETATFLDAFHYYDSDGPVLYPRALCLFEMP
                                                                                                                                                                                                                           SPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQN 670
                                                                                                                                                                                                                                                                                                                      LAQKYAVGEVEAVVLEE-----VVLEDPLPGATEQPPLFSSYKPRGEFHTPVTVAGPHV
                       EPLPQNSSMARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDESDEI-NNETIAG
                                                   WSPSHSLVQPTLEQTQYSHEHQAAFRFGQTLPKYLLFSSPQKNRWGHRRSYRLQIHSMAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26.2%; Score 1404.5; DB 11; Length 39.8%; Pred. No. 1.1e-104; tive 127; Mismatches 270; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Craniata; Vertebrata; I
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Euteleostomi;
; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                              482
                                                                                                                                                                                                                 422
  662
                                                      602
                                                                                                         542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15;
```

õ

```
RESULT
Q8R229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                         В
                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                          Š
                                                                                                                                    Q
                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OBR229;
01-JUN-2002 (TrEMBLrel. 21, Created)
01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
11-JUN-2002 (TrEMBLrel. 21, Last annotation update)
14-JUN-2002 (TrEMBLrel. 21, Last annotation update)
15-JUN-2002 (TrEMBLrel. 21, Last annotation update)
15-JUN-2002 (TrEMBLrel. 21, Last annotation update)
15-JUN-2002 (TrEMBLrel. 21, Last sequence update)
15-JUN-2002 (TrEMBLrel. 21, Created)
16-JUN-2002 (TrEMBLrel. 21, Created)
16-JUN-2002 (TrEMBLrel. 21, Last sequence update)
17-JUN-2002 (TrEMBLrel. 21, Last sequence update)
17-JUN-2002 (TrEMBLrel. 21, Last sequence update)
18-JUN-2002 (TrEMBLrel. 21, Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q8R229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hypothetical protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Strausberg R.;
Submitted (FEB-2002) to the
EMBL; BC022627; AAH22627.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-COLON;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE 447 AA; 51265 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
420
                                               969
                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GLNHVQ--RWIPENRDCLVS-PPFSYNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KDLVAMVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDODA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACEVNPLACLPQAAACAPDLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EDLYAWYTYGFLHIPHSEDYPNTATPGNCYGFLIRPFNFFEEDPSLASRDTYIY-WPQDN
                                                                                                                                                                                                                                                                                                                                                                            AGMQTKYIDVGWGLGSVTHELAPGIDCPETATFLDAFHYYDSDGPVLYPRALCLFEMPTG
                                                                                                                     LVAWVTAGELHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGA
                                                                                                                                                                                                                                                                                  PSHSLVQPTLEQTQYSHEHQAAFRFGQTLPKYLLFSSPQKNRWGHRRSYRLQIHSMAEQV
                                                                                                                                                                                                                                                                                                                PEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRLQMLSFAGEP
NHVQ - - RWIPENRDCLVS - PPFSYNG
                                            CEVNPLACLPQAAACAPDLPAFSHGG
                                                                                            LVAWVTVGFLHIPHSEDVPNTATPGNCVGFLIRPFNFFEEDPSLASRDTVIV-WPQDNGL
                                                                                                                                                                                           LPPGWQEERAVTWARYPLAVTKYRESERYSSSLYNQNDPWDPPVVFEEFLRNNENIENED
                                                                                                                                                                                                                 LPQNSSMARGFSWERYOLAVTORKEEEDSSSSVFNQNDDWAPTVDFSDFI-NNETIAGKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          199;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19.3%; Score 1032; DB 11; 44.6%; Pred. No. 7e-75; tive 78; Mismatches 161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E556E4AA2525D1D1 CRC64;
                                               994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            447;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                        789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   672
                                                                                                                                                   968
                                                                                                                                                                                                                                             806
                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                         849
                                                                                                                                                                                                                                                                                                                                                                                        240
```

Ş

RESULT Q94745 ID QS AC QS DT 01

σ

Q94745; Q94745; Q1-FEB-1997

(TrEMBLrel. PRELIMINARY;

02,

Created

PRT;

218 ጅ

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DT DD DT RR P R R P R R P R R P R R P R R P R R P R R P R R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R P R 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 193
SEQUENCE FROM N.A.
HONG S.-J.;
HONG S.-J.;
Submitted (APR-1999) to the
EMBL; L47992; AAB46369.3; -
HSSP; P31670; 1FHE.
InterPro; IPR004046; GST_Ct
InterPro; IPR004045; GST_Nt
                                                                                                                                                                                           Hong S.-J., Lee D.-H.;
"Cloning and over expression
Clonorchis sinensis.";
Thesis (1996), Parasitology,
                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. Hong S.-J., Lee D.
                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Platyhelminthes; Opisthorchiida; Opisthorchiata; Opis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q25595
Q25595;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Grams S.V., Grams R., Korge G., Vi
"Cloning and sequencing of the 26
of Schistosoma mekongi.";
                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=79923;
                                                                                                                                                                                                                                                                                                                                                                                                                                  01-NOV-1996 (TIEMBLIEL 01, Created)
01-NOV-1999 (TIEMBLIEL 12, Last sequence up
01-JUN-2002 (TIEMBLIEL 21, Last annotation
Putative glutathione transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transferase.
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Southeast Asian J. Trop. Med. Public Health EMBL; Y07663; CAA68944.1; -. HSSP; P08515; 1GTA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Schistosomatoidea;
NCBI_TaxID=38744;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26kD glutathione S-t
Schistosoma mekongi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-FEB-1997 (TrEMBLrel. 02, Las 01-JUN-2002 (TrEMBLrel. 21, Las 26kD glutathione S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR004046; GST_Cterm
InterPro; IPR004045; GST_Nterm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-98222395;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6
                                                                                                                                                                                                                                                                                                                                                                                                              conorchis sinensis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RIENIPQINEYLRSSKYIEWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APILGYWKIKGLYQPTRLLLEYLGEEYEERLYERNEGDAWRNEKFKLGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLNKLPEMLKMFEDRLCHKTYLNGDRVTHPDFMLYDALDVVLYMDRKCLDAFPKLVCFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF00043; GST_C;
PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Platyhelminthes;
Schistosomatidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25486 MW;
  GST_Cterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19.2%;
88.9%;
                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02, Last sequence update)
21, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11;
                                                                                    EMBL/GenBank/DDBJ
                                                                                                                                                                                        Chung-Ang
                                                                                                                                                                                                                                     of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1029; DB 5;
Pred. No. 3.9e-75;
l; Mismatches 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         D3080620B19DE23A CRC64;
                                                                                                                                                                                                                                       26
                                                                                                                                                                                                                                                                                                                                                             thes; Trematoda; Digenea;
Opisthorchioidea; Opisthorchiidae;
                                                                                                                                                                                                                                     kDa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Trematoda; Digenea; Schistosoma.
                                                                                                                                                                                        University College of
                                                                                                                                                                                                                                   glutathione S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                  on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28:570-574(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13;
                                                                                  databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Strigeidida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                        Medicine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                 irom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

```
밁
                                    Š
                                                                                 밁
                                                                                                                       δÃ
                                                                                                                                                                밁
                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                  OS FROM GS ON THE SULPT ON THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SORR
                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 13.5
Best Local Similarity 59.0
Matches 128; Conservative
                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF0004
Pfam; PF0279
Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Grams S.V., Grams R., Sobhon P., Viyanant V., "Molecular cloning of expressed antigens from submitted (DEC-1998) to the EMBL/GenBank/DDBJ EMBL; AF112567; AAD23997.1; ... HSSP; P31670; IFHE. InterPro; IPR004046; GST_Cterm. InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-THAILAND;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EUKaryota; Metazoa; Platyhelminthes; Trematoda; Digenea;
Echinostomida; Echinostomata; Fascioloidea; Fasciolidae;
NCBI_TaxID-46835;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fasciola gigantica,
Eukaryota; Metazoa;
Echinostomida; Echi
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00043; GST_C; Pfam; PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9XYL9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9XYL9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
    185
                                        221
                                                                                 125
                                                                                                                          161
                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        158
                                                                                                                                                                5
                                                                                                                                                                                                                                                              41 LGYWKIKGLVQPTRLLLEYL5EKYEEHLYERDEGDKWRNKKFELGLEEPNLPYYIDGDVK 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86
                                                                                                                                                                                                                                                  G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                        DLPKIKAYMESEKFIKWPLNSWTASFGGGDAAP
                       AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP
                                                                                                                                                                                 LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS
                                                                                                                                                          LTQSVAIMRYIADKHGMLGSTPEERARVSMIEGAAMDLRMGFVRVCYNPNFEEVKGDYLK
                                                                                                                                                                                                                                           LGYWKIRGLQQPVRLLLEYLDEEYEEHLYGRDDREKWLGDKFNMGLDLPNLPYYIDDKCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YLQQLPSTLRMWSQFLGNNSYLHGSTPTHLDFMFYEALDVIRYLDPTSVEAFPNLMQFIH 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APVLGYWKIRGLAQPIRLLLEYVGDSYEEHSYGRCDGEKWQNDKHNLGLELPNLPYYKDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RIEALPNIKAFMESDRFIKWPLNGWSAYFGGGDAPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NFSLTQSLAILRYIADKHNMIGNTPVERAKISMIEGGLVDLRAGVSRIAYQETFEQLKVP 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF00043;
PF02798;
                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel. 12,
2 (TrEMBLrel. 21,
5 S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                  AA
ج
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GST_C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΑĄ;
                                                                                                                                                                                                                                                                                                                                                                                                                25337 MW;
                                                                                                                                                                                                                                                                                                                                                  13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25038 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12,
12,
21,
                                                                                                                                                                                                                                                                                                                               36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence up
                                                                                                                                                                                                                                                                                                                                                Score 707; DB 5;
Pred. No. 4.7e-49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 721; DB 5;
Pred. No. 3.5e-50;
8; Mismatches 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                              E9423D75C3F2EEAF CRC64;
                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7CB17C7B837A0B7C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          218
217
                                      253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                          52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Upatham E.S.; n Fasciola gigar databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             51;
                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 218;
                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                   218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fasciola.
                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                        124
                                                                                                                                                                                                  160
                                                                                                                                                                                                                                         64
                                                                          184
                                                                                                                   220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
OS PER NO CONTROL OF STATE OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                       õ
                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q96X16
Q96X16;
Q1-DEC-2001
Q1-DEC-2001
Q1-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pichia pastoris (Yeast).
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Pichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saccharomycetales;
NCBI_TaxID=4922;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lysyl oxidase. AOC1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AF358434; AAK49976.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kucha J.A., Dooley D.M.;
"Cloning, sequence analysis, and characterization oxidase' from Pichia pastoris.";
J. Inorg. Biochem. 83:193-204(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
MEDLINE-21131996; PubMed-11237259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   104
                                                                                                                                                                                                                                                                                                                                438
                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                  379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             280 SPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLP 339
                              830
                                                                                                                                                                                                              493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NKTEALTYLDEDGDLPPRNARTVVYFGEGEEGYFEELKVGPLP---VSDETTIE----PL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APKTNIWT-----SLAKEEVQEVLDLLHSTY--NITEVTKADFFSNYVLWIETLKP 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --APPLOFYPOGPRFSVQGSRVASSL--WTFSFGLGAFSGPRIFDVRFQGERLVYEISLQ 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QWKMLEYIYNNKYYTSAEELYEAMQKDDFVTLPKIDVDN----LDWTVIQRNDSAPIRHLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DMGCHSAAPQLHDPATGATVDYGTCNINTENDAENLVPTGFFFK-----FDMTGRDVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SFYNTNGKSKLPFEVGHLDRIKSAAKSS-----FLNKNLNTTIMRDVLEGLIGVPYE 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPL 399
                                                                                                                                                                                                                                                                                                                                                                                     RDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAI 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWH-FLLESQAPKTI 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DRKSPRLVEPEGRRWAYDGEEEYFSWMDWGFYTSWSRDTGISFYDITFKGERIVYELSLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RWTIQKVFYQGRYYDSLAQL-EAQFEAGLVNVVLIP-DNGTGGSWSLKSPVPPGP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----QSGDRATWFGLYY------NISGAGFFLHHVGLELLVNHKALDPA 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pro; IPR000269; CuNH_oxidase.
PF01179; Cu_amine_oxid; 1.
NCE 787 AA; 89690 MW; D779E8F2BF766745 CRC64;
NKWGHPRGYRIQMLSFAGEPLPQNS-SMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDP | :|:|| | :|: | :|| | :|: | i
                                                                                                                                                VFVPMAVPWSPEHQLQRLQVTRKLLEMEE-----QAAFLVGSATPRYLYLASNHS
                                                                                                                                                                                                                                                                      EIRFYATGYISSAFLFGAT-GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDM
                                                                                                                                                                                                                                                                                                                             --SYCVFENQEDYSLLRHTGASYSAI----TQNPTLNVRFISTIGNYDYNFLYKFFLDGTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ELIAEYGSDDPFNQHTFYSDISYGVGNRFS-LVPGYDCPATAGYFTTDTFEYDEFYNRTL
                                                                                      KDVDVEYPWAPGTVYNTKQIAREVLEKEDFNGINWPENGQGILLIESA-----EET
                                                                                                                                                                                                        EVSVRAAGY IQAGYWNPETSAPYGLK I HDVLSGSFHDHVLNYKVDLDVGGTKNRASKYVM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 l (TrEMBLrel.
l (TrEMBLrel.
2 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative 114; Mismatches 320; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12.1%; Score 649; DB 3; Length 787; 27.3%; Pred. No. 1.9e-43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ያ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       545
                                                                                                                                                                                                                                                                                                                                   492
                                                                                                                                                                                                                                                                                                                                                                                                                                                         437
                                                                                            603
                                                                                                                                                       829
                                                                                                                                                                                                              552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21;
```

```
RESULT
Q920K6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SO DE RELLEGIO DE RECENTA DE RECE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                RESULT 10
Q9N0V4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q920K6;
Q920K6;
Q1-DEC-2001 (TrEMBLrel. 19, Last sequence upon 1-DEC-2001 (TrEMBLrel. 19, Last sequence upon 1-MAR-2002 (TrEMBLrel. 20, Last annotation Diamine oxidase (EC 1.4.3.6) (Fragment).
Cavia porcellus (Guinea pig).
Cavia porcellus (Guinea pig).
Bos taurus (Bovine).
Eŭkaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
Bovidae; Bovinae; Bos.
NCBI_TaxID=9913;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Verte
Mammalia; Eutheria; Rodentia; Hystricognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q920K6
                                                                                                                                                                                                                                                                                            Q9NOV4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1
PROSITE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (OCT-2001) to the EMBL/GenBank/DDBJ EMBL; AB073298; BAB70498.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN-HARTLEY; TISSUE-SMALL INTESTINE; Kitanaka J., Kitanaka N., Takemura M.; "Cloning of a cDNA for guinea-pig diamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A. STRAIN-HARTLEY; TI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=10141;
                                                                                                                                                                                                             01-OCT-2000 (TrEMBLrel. 15, 01-OCT-2000 (TrEMBLrel. 15, 01-JUN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Oxidoreductase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
les 115; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 NPWSPGHHLVQPTLKQSRYSQERQAAFRFGQTLPKYLLFTSREKNRWGHERGYRLQIHSM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>س</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ENSRDTTQQVFYTYDDE 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DPSFYSADSIYFRGDQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YDPPVNFNAFLDDESLDGEDIVAWVNLGLHHLPNSNDLPNTIFSTAHASFMLTPFNYFDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGKDLVAMVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSI 958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AEQVLPAGLPEERAITWARYPLAVTKYRESELCSSSIYNQNDPWDPDVVFQKFLHNNEDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMA 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NSFGNPRAYNIMPGGGGVHRIVKNSRSGPETQNWARSNLFLTKHKDEELRSSTALNTNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ENEDLVAWVTVGFLHIPHSEDVPNTATPGNSVGFLLRPFNFFKEDPSLASRDTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGYVHATFYTPEGQRYGTRLHTHLLGNIHTHLLHYRVDMDVAGTKNSFQTLQMKLENIT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 271 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1
31323 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31;
                                                                                                                                                                                                                Last sequence update)
                                                                                                                                                                                                                                                                      Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 615.5; DB 11; Length Pred. No. 1.7e-41; 1; Mismatches 87; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Craniata; Vertebrata; Eut
Hystricognathi; Caviidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CEC46D64E4AA135D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               271
                                                                                                                                                                                                                                                                                                                             218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UNKNOWN_1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 oxidase (histaminase).";
DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۳.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    904
```

۲.

```
RESULT
Q90WM9
           Ş
                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local (
                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                        01-DEC-2001
01-DEC-2001
01-JUN-2002
                                                                                                               Eukaryota; Metazoa; Chordata; Craniata;
Amphibia; Batrachia; Anura; Mesobatrach;
Xenopodinae; Xenopus.
                                                                    SEQUENCE
                                                                                       Transferase.
                                                                                                                                                                                                                                                               Glutathione
                                                                                                                                                                                                                                                                                                                090MM9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR003081; GST_mu.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases EMBL; AF249588; AAF64308.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. TISSUE-LENS;
                                                                                                                                                                                                      NCBI_TaxID=8355
                                                                                                                                                                                                                                            Xenopus laevis (African clawed frog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         antioxidant activity.";
                                                                                                                                                                                                                                                                                                                                                                              215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HSSP; P09488; 1GTU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Jimenez-Asensio J.V., Garland D.;
"A lens glutathione S-transferase, class mu,
                                                                                                                                                                                   EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                            184
                                                                                                                                                                                                                                                                                                                                                                                                 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR004046; GST_Cterm.
                                                                                                                                                                                                                                                                                                                                                                                                                   155
64
                                                                                                                                                                                                                                                                                                                                                                                                                                                        95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
                                                                                                                                                                                                                                                                                                                                                                     FKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                              KPGFLKEIPEKIKLESEFLGKRPWFAGDKLTYVDFLVYDVLDMHRIFEPKCLDAFPNLKD 18:
                                                                                                                                                                                                                                                                                                                                                                                                                                 ILGYWDIRGLAHAIRLLLEYTDTNYEERQYSVGDAPDYDRSQWLNEKFKLGLDFPNLPYL 63
                                                                                                                                                                                                                                                                                                                                                           FISRFEGLKKISAYMKSSRFLPGPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ILGYWKIKGLYOPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYY 94
                                                                                                                                                                                                                                                                                                                                                                                                               KVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVS 214
                              al Similarity
102; Conserv
                                                                                               PF02798; GST_N; 1.
                                                                                                         PF00043;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                    219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218 AA;
                                                                                                                                                                                                                                                             (TrEMBLrel. 19, Created)
(TrEMBLrel. 19, Last sequence up
(TrEMBLrel. 21, Last annotation
S-trans#perase (EC 2.5.1.18).
                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                              N
                                                                    AA;
                                                                                                         GST_C;
                                                                   219
25359 MW;
                                      9.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25635 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9.7%;
                             34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36;
                                                                                                                                                                                                                       a; Craniata; Vertebrata; I
Mesobatrachia; Pipoidea;
                            Score 513.5; DB 13; Pred. No. 2.2e-33; 4; Mismatches 72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 518.5; DB 6
Pred. No. 8.8e-34;
                                                                 XLGSTM1.
; 5F7FF8AEDDA82DFD CRC64;
                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                            208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3D02EA0F43C07B0A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                             219
                                                                                                                                                                                                                                                                                                             ₿
                                                                                                                                                                                                                                                                                 update)
                                              DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 6;
                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  with thiol-specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                              Length
                                                                                                                                                                                                                       Euteleostomi;
; Pipidae;
                                                                                                                                                    Di Ilio C.;
igenesis of a
s laevis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                218;
                           5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5;
                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
          94
                           ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1;
```

```
RESULT
097117
  RRN OCC OCT DIT
                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
Q8R516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                    01-MAY-1999 (TrEMBLrel. 10, Created 01-MAY-1999 (TrEMBLrel. 10, Last set 01-JUN-2002 (TrEMBLrel. 21, Last ani Glutathione S-transferase. Boophilus microplus (Cattle tick). Eukaryota; Metazoa; Arthropoda; Chel Parasitiformes; Ixodida; Ixodida; ENCEL_TaxID-6941;
                                                                                                                                                           097117
097117;
097117;
01-MAY-1999
01-MAY-1999
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q8R516 PRELIMINARY; PRT; 218 AA. Q8R516; Q1-JUN-2002 (TrEMBLrel. 21, Created) O1-JUN-2002 (TrEMBLrel. 21, Last sequence update) O1-JUN-2002 (TrEMBLrel. 21, Last annotation update Glutathione transferase GSTM7-7 (EC 2.5.1.18).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Cloning and expression of a novel mu class murine glutathione transferase isoenzyme.";
Submitted (JAN-2002) to the pure 'A- EMMIT. | PROCESSION | P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; ...
Transferase.
Transferase. 218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AF464943; AAL76248.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                 185
                                                                                                                                                                                                                                                                                                                                                                                                                               216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155
                                                                                                                                                                                                                                                                                                         13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41 LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   госат
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                            VARFEVLKRISAYMKTSRFLRTPLYTKVATWG
                                                                                                                                                                                                                                                                                                                                                                                                                        KKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VEYLEQLPGMVKLFSQFLGQRTWFVGEKITFVDFLAYDILDLHLIFEPTCLDAFPNLKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LGYWDIRGLAHAIRLLLEYTGSSYEEKRYTMGDAPDYDRSQWLSEKFKLGLDFPNLPYLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DGSHKITQSNAILRYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDFEKLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVS 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETL 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KGPYLEKLPIALKKFSCFLGDRSWFAGDKITYVDFVMYDVLDQHRILDPTCLQNFKNLQA 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VDGDVKLTQSNAILRYIARKHGLCGESEKEKNYVDLIENQAMDFRMGLVVIAYSPQFETL 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ILGYWDIRGLAHSIRLLLEYTGTQYEEKLYVTGDAPNYDKSQWLNEKEKLGLDFPNLPYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25519 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40;
                                                                                                                                                             Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 507.5; DB 11;
Pred. No. 6.8e-33;
0; Mismatches 71;
                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81F15DBB46118102 CRC64;
                                                               Chelicerata; Arachnida;
ae; Boophilus.
                                                                                                                                                                                                                                                          223
                                                                                                                                                                                                                                                                                                                                                                                                                        247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      247
                                                                                                                                                                                                                                                          ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 11;
                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Murinae;
                                                                                           Acari;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
```

۲.

SOUR CORRECT C

δÃ

```
OPTIMES
OPTIME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 101; Conserv
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Characterization and molecular cloning of a glutathione S-transferase gene from the tick, Boophilus microplus (Acari: Ixodidae).";
Insect Biochem. Mol. Biol. 29:737-743(1999).
BMBL; AF077609; AAD15991.1; ".
HSSP; P20136; 1650.
                                                                                                                                                      Toxicol Sci 56:26-36(2000).
EMBL; AF200709; AAF08539.1; -
HSSP; P09488; IGTU
InterPro: IPR004046; GST_Cterm.
InterPro: IPR003081; GST_mu.
InterPro: IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1
Pfam; PF00798; GST_N; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9TSM5;
Q9TSM5;
Q1-MAY-2000
Q1-MAY-2000
Q1-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRINTS; PRO1267; GSTRNSFRASEM.
Transferase.
SEQUENCE 223 AA; 25604 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Glutathione GSTM1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cercopithecinae;
NCBI_TaxID-9541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-20330602; PubMed-10869451;
Wang C., Bammler T.K., Guo Y., Kelly E.J., Eaton D.L.;
"Mur-class GSTs are responsible for aflatoxin B(1)-8, 9-epoxide-
conjugating activity in the nonhuman primate macaca fascicularis
                                                                                                          Transferase
                                                                                                                                PRINTS; PR01267; GSTRNSFRASEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  erPro; IPR004046; GST_Cterm.

prpro; IPR003081; GST_mu.

erPro; IPR004045; GST_Nterm.

n; PF00043; GST_C; 1.

n; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERD-----EGDKWRNKKFELGLEFPNLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFE 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APVLGYWDIRGLAQPIRLLLAHVDAKVDDKRYTCGPPPDFDRSSWLNEKTKLGLEFPNLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KAFVDRIEALPHVAAYLKSDKCIKWPLNGDMASFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KLKGDYLKNLPASLKAFSDYLGTHKFFAGDNLTYVDFIAYEMLAQHLIFAPDCLKDFANL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YYIDGDVKLTQSMAILRYLARKHGLEGKTEAEKQRVDVSEQQFADFRMNWVRLCYNPDFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9.4%;
ilarity 47.0%;
Conservative 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (TIEMBLIE1. 13, Created)
(TIEMBLIE1. 13, Last sequence update)
(TIEMBLIE1. 21, Last annotation updat
S-transferase mu-class subunit M1 (EC
                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Macaca.
                                                                                 25577 MW;
     43 9
     . 98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 503.5;
Pred. No. 1.5
     Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F276ACE2D8259174 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                 EE5B4D80F60C95EB CRC64;
     484.5; DB
No. 5e-31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.5e-32;
78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           on update)
: M1 (EC 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                              6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                Length
                                218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
```

```
RESULT
Q9TSM4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A CANADAR AND A 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                 Db
                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                           Ş
                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Interpro; IPR004046; GST_Cterm.
Interpro; IPR003081; GST_mu.
Interpro; IPR004045; GST_Nterm.
Pfam; PP00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9TSM4;
Q9TSM4;
Q1-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE-LIVER;
MEDLINE-20330602; PubMed-10869451;
MEDLINE-20330602; PubMed-10869451;
Wang C., Bammler T.K., Guo Y., Kelly E.J., Eaton D.L.;
"Mu-class GSTs are responsible for aflatoxin B(1)-8, 9-epoxide-
"Mu-class GSTs are responsible for aflatoxin B(1)-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey)
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleost
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
Cercopithecinae; Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; AF200710; AAF08540.1; HSSP; P28161; 1HNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GSTM2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Toxicol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=9541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41
                                                                  216
185
                                                                                                                                    125
                                                                                                                                                                                                   156
                                                                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                                                                                                                   96
                                                                                                                                                                                                                                                                                                                                                                                                                                            ψ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEEPNLPYYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ISHFEGLEKISAYMKSSRFLPKPLYTRVAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEYLEGLPTMAQHESQELGKRPWEVGDKITEVDELAYDVLDLHRIFEPKCLDAFPNLKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNLPYLI
                                                           KKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                             PEYLEGLPEMLKLYSQFLGKQPWFLGDKITFVDFIAYDVLERNQVFEPSCLDAFPNLKDF
                                                                                                                                                                   VDFLSKLPEMIKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSF
                                                                                                                                                                                                                                                                     DGDVKLTQSWAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 155
                                                                                                                                                                                                                                                                                                                                                                                                      LGYWNIRGLAHSIRLLLEYTGSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNLPYLI
ISRFEGLEKISAYMKSSRFLPRPVFTKMAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
95; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (TIEMBLrel. 13, Created)
(TIEMBLrel. 13, Last sequence update)
(TIEMBLrel. 21, Last annotation update)
S-transferase mu-class subunit M2 (EC 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56:26-36(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25708 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 481.5; DB 6
Pred. No. 8.7e-31;
5; Mismatches 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F2E509C3949F9051 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                247
      216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.5.1.18).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         184
                                                                                                                                                                                                          215
                                                                                                                                                                                                                                                                               124
                                                                                                                                                                                                                                                                                                                                                                                                                64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1;
```

۲.

Search completed: May 20, 2003, 11:37:53 Job time: 72.8588 secs

us-10-081-408-20.rspt

Page 8

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to a score greater than or equal to the score of the result bear and is derived by analysis of the total score distribution
                                                                                                                                                                                                     4010
2489.5
457.5
                                                                                        329
324
302.5
246.5
                                                                                                                                                                                                                                                                                                                 Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-081-408-2_COPY_20_763
4010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 May 20, 2003, 11:39:34 ; Search time 41 Seconds (without alignments) 2418.011 Million cell updates/sec
                                                                                                                                                                                                     100
62
11
                                                                                                                                                                                                                                                                                                                 Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LYCYLLYGRGGDGGEPSQLP.....QAAACAPDLPAFSHGGFSHN 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A_Geneseq_101002:*
1: /SIDS2/gcgdata/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /SIDS2/gcgdata/genesed/genesedp-emb1/AA1985.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1986.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1986.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1989.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1989.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1999.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1991.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1992.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1993.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1993.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1993.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1995.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1997.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1997.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1998.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1998.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1998.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1998.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1998.DAT: *
/SIDS2/gcgdata/genesedy-genesedp-emb1/AA1998.DAT: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1984.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*
                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                 IJ
                                                            AAY03219
AAU84261
ABP41516
ABB91435
ABB92504
ABB92082
ABB92910
AAR94370
                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
Human ovarian anti
Herbicidally activ
Herbicidally activ
Herbicidally activ
Herbicidally activ
Herbicidally activ
A. niger strain M-
Human ORFX ORF2716
Herbicidally activ
                                                                                                                                                                                                                                                                                                         Description
                                                                                                                                                                                                                            Amino acid sequenc
Human endometrial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      to have a being printed,
```

96.5 96	96.5	96.5	97	97.5	97.5	98	98	98.5	98.5	98.5	98.5	98.5	98.5	100	100.5	100.5	100.5	100.5	101	101.5	101.5	102	102.5	102.5	103	103	104	104.5	106	106	106.5	109	115
22.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4									•	•			2.5		•					•	•			•	•	•
1137 1982	\vdash	763	545	903	308	929	810	1494	1152	933	933	897	844	617	1544	1257	1253	718	617	736	587	1194	541	541	2224	2224	1250	594	825	617	446	435	2675
8 22	23	22	23	21	20	20	22	23	21	21	20	22	22	22	23	20	23	22	23	23	22	22	20	20	20	17	22	22	22	23	22	14	21
AAP71182 ABG16404	97	AAU41222	ABB91611	AAB42926	AAY30811	AAY22189	ABG04698	AAU78460	AAY94920	AAY73400	AAY26349	AAM93422	ABB53083	.AAU02204	AAU97541	AAW74152	AAU10648	AAU54939	AAE23403	ABB57329	ABB52856	AAG92078	AAY01647	AAY01648	AAY49564	AAW04254	AAG65914	ABG07023	ABB67526	AAE23407	5	AAR32999	AAB07564
										_																							
Sequence of herpes Novel human diagno	Human polypeptide	Propionibacterium	n	Human ORFX ORF2690	Human secreted pro	Trimeric murine C3	Novel human diagno	beta-cate	secreted	secreted		Human polypeptide,	Escherichia coli p	Trichoderma harzia		L1 cell adh	Human L1CAM protei	Propionibacterium	oxidase p	a	scherichia coli	m pro	P450	hrome P450	lipoprot	Facto		Novel human diagno	Drosophila melanog	Lysine oxidase pro		Rat choline kinase	Protein encoded by

ALIGNMENTS

RESULT 1
AAY03219
ID AAY0
XX

AAY03219 standard; Protein; 763 AA

AAY03219;

/note= "potential N-glycosylatin site" Misc-difference 232 /note= "potential O-glycosylation site" Misc-difference 679 /note= "potential O-glycosylation site" Misc-difference Misc-difference Misc-difference Misc-difference Misc-difference Misc-difference Homo sapiens. Human; vascular adhesion protein-1; VAP-1; endothelial cell; Amino acid sequence of the vascular adhesion protein-1 21-JUN-1999 (first entry) lymphocyte; inhibition; amine oxidase. /note- "potential N-glycosylation site" 618/note= "potential 0-glycosylation site"
137 Location/Qualifiers /note= "potential N-glycosylation site" note= "potential N-glycosylation site" note-"potential N-glycosylation

```
Ş
                     밁
                               δ
                                                рь
                                                             Š
                                                                            Query Match
Best Local Similarity
Matches 744; Conser
                                                                                                                                                                                            protein
oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Peptide
                                                                                                                                                                                                                        N-PSDB;
                                                                                                                                                                                                                                                                                                                                                     Peptide
                                                                                                                                                                                                                                                                                                                                                                                  Peptide
                                                                                                                                                                                                                                                                                                                                                                                               Peptide
                                                                                                                                                                                                                                                                                                                                                                                                             Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                           Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                         Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Peptide
                                                                                                                                                                                                          Nucleic
                                                                                                                                                                                                                               WPI; 1999-131690/11.
                                                                                                                                                                                                                                             Bono P,
                                                                                                                                                                                                                                                                         23-MAY-1997;
                                                                                                                                                                                                                                                                                                      26-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                    Peptide
                                                                                                         Sequence
                                                                                                                   This is the nucleotide sequence encoding the human vascular adhesion protein-1 (VAP-1) used in the method of the invention. The method involves manipulating VAP-1 mediated binding of endothelial cells to lymphocytes which comprises inhibiting the enzymatic activity of amine oxidase in endothelial cells, and potentiating the enzymatic activity of endothelial cells.
                                                                                                                                                                      Claim 1; Fig 1; 66pp; English.
                                                                                                                                                                                     endothelial cells to lymphocytes
                                                                                                                                                                                                                                                                                       22-MAY-1998;
                                                                                                                                                                                                                                                                                                                                         Domain
                                                                                                                                                                                                                                                           (BIOT-)
        121
                                   13
                      08
                                                 20
                                               GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
ELVVGPLPHPSYMRDYTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
                     GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                                                                                                                                                                         AAX28632.
                                                                                                                                                                                           acid encoding a novel human endothelial cell adhesion designated VAP-1 - having an adhesive function and an function us\phifunction us\phiful for manipulating VAP-1 mediated binding
                                                                                                                                                                                                                                                           BIOTIE THERAPIES LTD
                                                                                                                                                                                                                                             Jalkanen S,
                                                                                                         763
                                                                            100.0%;
llarity 100.0%;
Conservative
                                                                                                        A,
                                                                                                                                                                                                                                                                         97US-0862433
                                                                                                                                                                                                                                                                                       98WO-FI00429
                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "1
                                                                                                                                                                                                                                                                                                                                                                                  /note=
                                                                                                                                                                                                                                                                                                                                                                                                              /note= "1384..393
                                                                                                                                                                                                                                                                                                                                                                                                                            /note "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      264..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note-
259..26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note-
74..78
                                                                                                                                                                                                                                                                                                                                                                    624 . . 637
                                                                                                                                                                                                                                                                                                                                                                                                /note=
562..5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note- "
170..174
                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note-
                                                                                                                                                                                                                                                                                                                                               note- "N-terminal tryptic peptide"
                                                                                                                                                                                                                                                                                                                                                             'note=
                                                                                                                                                                                                                                                                                                                                                                          'note-
                                                                                                                                                                                                                                                                                                                                                                                                                                           . 36
                                                                                                                                                                                                                                                                                                                                                                                   .601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . 277
                                                                                                                                                                                                                                             Salmi M,
                                                                                                                                                                                                                                                                                                                                 "transmembrane domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ,γ8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "potential N-glycosylation
                                                                                                                                                                                                                                                                                                                                                                                                       "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                    "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                             "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "V8 peptide'
                                                                                                                                                                                                                                                                                                                                                                           "V8 peptide'
                                                                                                                                                                                                                                                                                                                                                                                         "V8 peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                  "V8 peptide"
                                                                                                                                                                                                                                                                                                                                                             "V8 peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         peptide"
                                                                             <u>,</u>
                                                                            Score 4010;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                              Smith
                                                                                                                                                                                                                                             덛
                                                                                           DB
                                                                            0,
                                                                                          20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      site"
                                                                             Indels
                                                                                         Length
                                                                                                                                                                                            an amine
ding of
                                                                            0;
                                                                             Gaps
       180
                                                                             0,
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                          ő
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                             Mutter
                                                                                                                Homo
                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                    560
                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                               500
                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                           440
                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                       380
                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                   320
                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                               260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                740
                                                                                                                                                                                                                                                            680
                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                       620
                                                                                                                                                                                                                                             721
```

```
₽
WPI; 2002-179967/23
N-PSDB; ABK35481.
                                                                                                 31-JUL-2000;
                                                                                                                                                                                                                                     Human; endometr DNA microarray;
                                                                                                                                                                                                                                                                                                           08-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                 AAU84261 standard; Protein; 729
                                                                                                                          31-JUL-2001;
                                                                                                                                                     07-FEB-2002
                                                                                                                                                                                   WO200209573-A2
                                                                                                                                                                                                                                                                                Human endometrial
                                                                                                                                                                                                                                                                                                                                       AAU84261;
                                                                     (BGHM ) BRIGHAM & WOMENS HOSPITAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACLPQAAACAPDLPAFSHGGFSHN 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACLPQAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL
                                                                                                                                                                                                                                     endometrial cancer; differential expression;
proarray; protein microarray.
                                                                                                                           2001WO-US24104
                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                 2000US-221735P
                                                                                                                                                                                                                                                                                cancer related protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
```

679 660 619 559

499

```
Ş
                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                             δÃ
                                                                                                                                      밁
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                              S
                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention relates to diagnosing endometrial cancer in a subject suspected of having endometrial cancer comprising determining the expression of a set of nucleic acid molecules or expression products in an endometrial sample suspected of being cancerous, where the set of nucleic acid molecules comprises at least 2 nucleic acid molecules sequences as given in the specification. Selected from 50 fully defined sequences as given in the specification. The nucleic acids bound to a solid substrate. Also included is a solid-phase protein microarray comprising at least 2 antibodies or its antigen conjugate the sequences as given in the specification, fixed to a solid substrate. The methods and arrays are conjugated for the diagnosis of endometrial cancer, selecting and monitoring treatment regimes and identification of lead compounds useful for the creatment of endometrial cancer. The present sequence is one of 50 proteins differentially expressed between cancerous and non-cancerous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Diagnosing endometrial cancer comprises determining expression of nucleic acid molecules or expression products that are differentially
                                                                                                                                        494
                                                                                                                                                                                                           434
                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                               374
                                                                                                                                                                                                                                                                                                                                                  314
                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                    254
                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAF
                                                                                                                                                                                                                                                                                               MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLP
                                                                                        QLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQ
||| |:||::| |: || :|| ||||||||| :| ||| ||
                                                                                                                                                        LFGATG--KYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEH
                                                                                                                                                                                                                                                                             MLTRYLDSSFGLGRNSRGLVRGVDCPYQATMVDIHILVGKGAVQLLPGAVCVFEEAQGLP
                                                                                                                                                                                                                                                                                                                                                GSQYSVQGNLVVSSLWSFTFGHGVFSGLRIFDVRFQGERIAYEVSVQECVSIYGADSPKT
                                                                                                                                                                                                                                                                                                                                                                GPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAA
                                                                                                                                                                                                                                                                                                                                                                                                                  TVQQVFYLGHYYADLGQLEREFKSGRLEVVRVPLPPPNGASSLRSRNSPGPLPPLQFSPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       - FNYNGSTLAAVHATPRGLRSRERTTWIGLYHNISGVGLFLHPVGLELLLDHRALDPAHW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLRAEFTQMWRHLKDVELPKAPIFLSST-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LAYVLLTSPGGS---
              NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAW
                                                                                                                                      LKGGEEGLLFGNRVGERVLGTVHTHAFHFKLDLDVAGLKNWVVAEDVVFKPVAAPWNPEH
                                                                                                                                                                                                           LRRHHNYLONHFYGGLASSALVVRSVSSVGNYDYIWDFVLYPNGALEGRVHATGYINTAF
                                                                    WLQRPQLTRQVLGKEDLTAFSLGSPLPRYLYLASNQTNAWGHQRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               al Similarity 63.7
473; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Page 131-134; 233pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  molecules or expression products normal and malignant endometrium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ξ,
YQLVVTQRKEEESQSSSIYHQNDIWTPTVTFADFINNETLLGEDLVAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62.1%;
63.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -SQPPHCPSVSHRAQPWPHPGQSQLFADLSREELTAVMRFLTQRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 2489.5;
Pred. No. 2.1e.
86; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.1e-244;
hes 149;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DΒ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 that are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 729;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                    598
                                                                                                                                                                                                           493
                                                                                                                                                                                                                                                                             433
                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
646
                                  658
                                                                                                                                      553
                                                                                                                                                                         538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       253
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
CC ABP43228) and to cDNAs encoding them (ABO54131-ABO56305), and also CC encompasses polypeptides 90% identical and polynucleotides 95% identical to the sequences of the invention. The invention additionally relates to recombinant vectors and host cells comprising human ovarian antigen CC polynucleotides, antibodies against human ovarian antigens and the use CC of ovarian antigen polynucleotides and polypeptides in diagnosing, CC treating, prognosing or preventing various ovary and/or breast-related contracts and contracts and polypeptides in diagnosing, CC disorders. Such conditions include ovarian cancer and breast cancer, and metastatic tumours of ovarian or breast origin, reproductive system CC disorders (e.g., infertinty, disorders of pregnancy, anovulation, polycystic ovary syndrome, ovarian cysts, and dysmenorrhoea), endocrine CC disorders, infections (e.g., chamydia, HIV, toxoplasmosis, and toxic shock syndrome), inflammatory conditions (e.g., mastitis, oophoritis and conditions), immune disorders (e.g., congenital and acquired immunodeficiencies, autoimmune oophoritis, systemic lupus erythematosus), blood-related disorders (e.g., anaemia), cardiovascular disorders (erspiratory disorders, neurological disorders, gastrointestinal disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human; ovarian antigen; ovary; ovarian; breast; cancer; tumour; ovarian cancer; breast cancer; tumour; reproducts system disorder; infertility; pregnancy disorder; anovulation; polycystic ovary syndron PCOS; ovarian cyst; dysmenorrhoea; endocrine disorder; infection; inflammatory condition; immune disorder; belood disorder; cardiovascular disorder; respiratory disorder; neurological disorder; gastrointestinal disorder; urinary system disorder; drug screening; gene therapy; chromosome mapping; forensic analysis; antibody preparation; cytostatic; immunomodulatory; neuroprotective; antiinflammatory; gynaecological; reproductive; chromosome 7q34-ter.
                                                                                                                                                                                                                                                                                                                                                                                                                                  Isolated nucleic acid molecules encoding novel ovarian polypeptides, useful in the prevention, treatment and diagnosis of cancer (e.g. ovarian cancer), immune disorders, cardiovascular disorders and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-PSDB; ABQ54593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2002-147878/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-JUN-2000; 2000US-209467P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-JUN-2001; 2001WO-US18569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              03-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABP41516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABP41516 standard; Protein; 248
                                                                                                                                                                                                                                                                                                                                                                                Claim 11; SEQ ID No 2648;
                                                                                                                                                                                                                                                                                                                                                                                                                  neurological diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (HUMA-) HUMAN GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200200677-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLACIPQAAACAPDLPAFSHGGF 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ovarian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        antigen HVVBK73,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SCI INC
                                                                                                                                                                                                                                                                                                                                                                              2922pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NO:2648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ovary syndrome;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    718
```

25;

```
RRESULT 4
ABB91435
ID ABB9
XX ABB92
XX ABB92
XX ABB92
XX BP1
DT 31-P
CX Hert
XX Hert
XX Hert
XX WO20
PN WO20
XX O7-E
PD 07-E
XX O7-E
PR 28-P
XX FF 28-P
XX FF 28-P
XX Interpret Comp
PT comp
PT from
PT from
PT from
PT from
PT orga
PX The
CC (ABB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and urinary system disorders. Ovarian antigen polypeptides and polynucleotides may also be used in screening for compounds which modulate ovarian antigen expression or activity. The polynucleotides may further be used for gene therapy, chromosome mapping, in the identification of individuals and in forensic analysis, and the polypeptides may be used as food additives or to prepare antibodies useful in disease diagnosis, drug targeting and phenotyping. The present sequence represents a human ovarian antigen of the invention.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, aligning and comparing nucleic acid or amino acid sequences.
                                                                                                    Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence from plant with nucleic acid or amino acid sequences from non-plant
                                                            Claim 5;
                                                                                                                                                                    WPI; 2002-269010/31.
                                                                                                                                                                                                Tietjen K,
                                                                                                                                                                                                                                                      28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                  07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                     Herbicidal; plant; Agriculture;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Herbicidally active
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABB91435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABB91435 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                             (FARB
                                                                                                                                                                                                                                                                                     28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           286 PVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEIS 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGAIEIRFYATGYISSAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IRDAFCVFEQNQGLPLRRHHSDLYS---HYFGGLAETVLVVRSMSTLLNYDYVWDTVFHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NGVMEAKMHATGYVHAXF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YPRALCLEEMPTGVPLRRHENSNEKGGENEYAGLKGQVLVLRTTSTVYNYDYIWDFIFYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VQEAVALYGGHTPAGMQTKYLDVGWGLGSVTHELAPGIDCPETATFLDTFHYYDADDPVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PSPIHVSGPRLVQPHGPRFRLEGNAVLYGGWSFAFRLRSSSGLQVLNVHFGGERIAYEVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          83; Conservative
                                                                                                                                                                                                                             BAYER
                                                            SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     248
                                                                                                                                                                                                Weidler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                            Ħ
                                                            ŏ
                                                            646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                    polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11.4%;
41.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                          261pp +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 457.5; DB 2
Pred. No. 1.1e-37;
                                                                                                                                                                                                                                                                                                                                                                                                         herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ጅ
                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                       IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                          Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23;
 sequences
                                                          English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       w
••
                                                                                                                    sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
 plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4 05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۲
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δð.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DX SX E
                                                                             ABB92504
                                                                                              RESULT
                                                                                                                                              밁
                                                                                                                                                                      Ω
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are
 31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                 ABB92504;
                                                             ABB92504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         useful as
                                                                                                                                                                                                                                                                                                                                    525
                                                                                                                                                                                                                                                                                                                                                                                                                                475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     171
                                                                                                                                              699
                                                                                                                                                                           706
                                                                                                                                                                                                                                                                      585
                                                                                                                                                                                                                                                                                                    587
                                                                                                                                                                                                                                                                                                                                                                                               469
                                                                                                                                                                                                                                                                                                                                                                                                                                                               411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44 LSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAR 103
                                                                                                                                              FEKD
                                                                                                                                                                           FRGD
                                                                                                                                                                                                         RDRSIENKDIVLWYTLGFHHVPCQEDYPVMPTV--AASFELKPANFFESNPILGSAP--F
                                                                                                                                                                                                                           NNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIY
                                                                                                                                                                                                                                                                     VPGGNAASLLDHDDPPQIRGAFTNNQIWVTPYNRSEQYAGGVLIYQSQGDDTLQVWSD--
                                                                                                                                                                                                                                                                                                  QMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD-FSDFI
                                                                                                                                                                                                                                                                                                                                  EKQRVPTGKSPRKSYLKVKKYIAKTEKDAQIKLSLYDPYEFHIVNPNRKSRVGNPAGYRI
                                                                                                                                                                                                                                                                                                                                                                ---AVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLAS-NHSNKWGHPRGYRI
                                                                                                                                                                                                                                                                                                                                                                                               KGTPYDNVDDLGDREDDAGPLISENVIGVVHDHFITFHLDMDIDGPMN----NSLVKVHL
                                                                                                                                                                                                                                                                                                                                                                                                                                ----YISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                               RHSEILFAN--ADIRESRPKVTLVARMATSVGNYDYIFDWEFQTDGLIRVTVAASGMLMV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RHHSDLYSHYFGGLAET----VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GYMDAGELGLGPTAMPLVPLNDCPRNSYYIDGVFASPDGKPIVQPNMICLFERYAGDISW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----GGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WVFHVKADQRAGMII-----SQATVRDSETGEPRSVMYKGFPSELFVPYMDPEEGWYYK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KG-----PIPIPKASGTEYRFGVQNKPVHMDRINPISMEQPDGPSFRVEDGHLVKWAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NGTGGSWSLKSPVPPGPAPPLQF-------YPQGPRFSVQ-GSRVASSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---SEEEGRRVI-----RVQCFTLQGTTNYFMRPLEGLYVTVDLDKLEVIKIID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQF - - - EAGLVNVVLIPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IFNRELPOASGLIHHCCFYKHRGRNLVTMTTAPRGLOSGDRAT ----- WFGLYYNISGA 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAAVVAYWGGQTHEITVDLDSGRV-----VSDVINRTSGYPI-LTLNDVFAASQVPLKSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EALAIVFFGROPOPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDOM 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LTVREINRVRTILSNH-DPGFGSGSAT-----IHSMALDEPEK-SRVVQWKKGNKLLSR 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          160;
                                                              standard;
                                                                                                                                                                           709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         herbicides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8.2%;
22.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 329; DB 23;
Pred. No. 8.2e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---EARGVKFSDLACITPFAGWFG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          321;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                         969
                                                                                                                                                                                                                                       705
                                                                                                                                                                                                                                                                     642
                                                                                                                                                                                                                                                                                                  645
                                                                                                                                                                                                                                                                                                                                  584
                                                                                                                                                                                                                                                                                                                                                                586
                                                                                                                                                                                                                                                                                                                                                                                               524
                                                                                                                                                                                                                                                                                                                                                                                                                                                              468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197
```

```
Q
                                                                                                                                                                              δÃ
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
ő
                               밁
                                                    δõ
                                                                                         밁
                                                                                                                    Š
                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are useful as herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        comprising aligning and from plant with nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tietjen K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Herbicidal; plant; agriculture;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 5; SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (FARB ) BAYER AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                              135
                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                191
                                                                                                                                                                                                                                                                                                           133
                               307
                                                                                                                        298
                                                                                                                                                                                     250
   398
                                                              351
                                                                                            253
                                                                                                                                                                                                                                                                                                                                         75
                                                                                                                                                                                                                                                                                                                                                                       80
                                                                                                                                                                                                                                                                                                                                                                                                       39
                                                                                                                                                                                                                                                                                                                                                                                                                                   20 PHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFS 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                       VELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNV---SELVVGPLPHPSY----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2002-269010/31
                                                                                                                                                                                                                                                                            LTMKDIIAV---SQVPY-----KSVEFNRSIEARGIP-FSGLICITPFAGWYGPD--
                                                                                                                                                                                                                                                                                                           --MRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLV 190
                                                                                                                                                                                                                                                                                                                                         MALDEPDKQRVIRWKKGDRLPPRRAEILAMSNGESHVLTVDLKSGRVVSDLVNPTFGYPI 134
 LESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGL---
                               SVMYKGFASELFVPNMDPGEGWYSKAYMDAGEFGLGPSSMPLVPLNDCPRNAYYIDGFFA
                                                                                          NPMSMEQPDGPSFQVEDGYLVKWANWKFHIKPDQRAGMII-----SQATVRDSKTGEAR 306
                                                                                                                                                                                     RYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQF-----
                                                                                                                                                                                                                                              TMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHV-GLELLVNHKALDPARWTIQKVFYQG 249
                                                                                                                                                                                                                                                                                                                                                                                                    PHHP-----LDPLTTP-------EIKRVQTILSGH-DPGFGSGS-----TIIHA 74
                                                              AI-YGGNSPAAM---
                                                                                                                        -----YPQGPRFSVQ-GSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEAL 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Weidler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ID NO 1715; 261pp + Sequence Listing;
                                                                                                                                                       ------IIKIVDNG------PVPVPKSTGTEYRYGFLNETVYMDRV 252
                                                                                                                                                                                                                   -EEGRRVIKIQCFSKQDTVNFYMRPIEGLYLTVDMDKLE--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ξ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8.1%;
22.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        comparing nucleic acid or amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  102;
                                                            TTRYVDGG-FGMGKYTTPLTRGVDCPYLATYVDWHFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 324; DB 23; Pred. No. 2.5e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ID NO 1715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   298;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
   AETVLVVRSMSTLLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                            180
    451
                                                                                                                                                                                     297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31;
```

```
RESULT 6
ABB92082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                       suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding t are useful for identifying modulators. The identified modulators are
                                                                                               The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using
                                                                                                                                                                                                              Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Herbicidal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABB92082;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABB92082
                                                                                                                                                                                                                                                                                                                                                                                                28-AUG-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                             07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Herbicidally active polypeptide
                                                                                                                                                                        Claim 5; SEQ ID NO 1293; 261pp + Sequence Listing;
                                                                                                                                                                                                                                                                             WPI; 2002-269010/31.
                                                                                                                                                                                                                                                                                                          Tietjen K,
                                                                                                                                                                                                                                                                                                                                                                    28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis
                            usetul as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             423
                                                                                                                                                                                                                                                                                                                                       (FARB ) BAYER AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      668 HAEDIPNTVTVGNGVGFFLRPYNFFDEDP----SFYSAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CQEDFPVMPTIAS -- SFELKPVNFFESNPVLGISPFFEKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SLYDPYEFHLVNPNRLSRLGNPAGYKLVPGGNAASLLDHDDPPQMRGAFTNNQIWVTR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSATPRYLYLAS-NHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FISFHLDMDIDGSAN----NSFVKVHLEKQRLPPGESRRKSYLKVKKYVAKTEKDAQIKM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQR----LQVTRKLLEMEEQAAFLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YDYIFDWEFQMDGVIRVTVAASGMLMVKGTAYENVEDLGEKEDDSGPLISENVIGVVHDH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YDYVWDTVFHPSGAIEIRFYATG-----YISSAFLFGATGKYGNQVSEHTLGTVHTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPEGIPILOPNMICLFERYAGDTSWRHSEIL----LPGVDIRESRAKVTLVARMACSVGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EEEPSSSSVFNQNDPWA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----YNRSEQWAGGLLMYQSRGEDTLQVWSD--RDRSIENKDIVLWYTLGFHHVP
                            herbicides
                                                                                                                                                                                                                                                                                                        Weidler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 plant; agriculture;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                  2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein; 759
                                                                                                                                                                                                                                                                                                          ĭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----PTVD-FSDFINNETIAGKDLVAWVTAGFLHIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        702
                                                                                                                                                                        English.
                                                                                                                                                                                                                                    sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              596
                                                         them
```

Query Match Best Local Similarity

22 55.5

Score Pred.

302.5; DB 23; No. 4.6e-21;

Length

Sequence

759

ž

Matches

166;

Conservative

```
δÃ
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                          RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
          07-FEB-2002
                                   WO200210210-A2
                                                              Arabidopsis thaliana
                                                                                         Herbicidal; plant; agriculture;
                                                                                                                       Herbicidally active
                                                                                                                                                     31-MAY-2002
                                                                                                                                                                                                         ABB92910 standard; Protein; 300
                                                                                                                                                                                                                                                                                    708
                                                                                                                                                                                                                                                                                                                                                                                                 590
                                                                                                                                                                                                                                                                                                                                                                                                                            561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              71
                                                                                                                                                                                                                                                                                                                                                                                           DPLSARHWIVRNTRTVNRTGQLTGYKLVPGSNCLPLARPEAKFLRRAAFLKHNLWVTRYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TVANYEYGFYWHFYODGKIEAEVKLTGILSLGALOPGETRKYGTTIAPGLYAPVHOHFFI
                                                                                                                                                                                                                                                                                                            NGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                      GSATPRYLYLASNHS-NKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRK 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FKVDLDV----AGLENWVWAEDMVFVPMAVPWSPEHQLQR--LQVTRKLLEMEEQAAFLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSH--YFGGLAET----VLVVRSMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QGER-LVYEISLQEALAIYGG-NSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVD
                                                                                                                                                                                                                                                                                   EHIGFTLMPHGFFNCSPA 725
                                                                                                                                                                                                                                                                                                                                       PDEKFPGGEFPNONPRAGEGLATWYKONRSLEESDVYLWYVFGITHVPRLEDWP--VMPV 707
                                                                                                                                                                                                                                                                                                                                                             EEEPSSSSVENQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ARMDMSVDCKPAEAFNQV-----VEVNVRVDERGENNVHNNAFYAEEKLLKSEAVAMRDC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TLLNYDYVWDTVFHPSGAIEIRFYATGYIS-SAFLFGATGKYGNQVSEHTLGTVHTHSAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AHFTNFTGGVETIENCVCLHEEDHGI------LWKHQDWRTGLAEVRRSRRLTVSFLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RGRRPVAHRLSFVEMVVPYGDPNEPHYRKNAFDAGEDGLGKNAHSLKKGCDCLGSIKYFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----VDRSDVKPLQIIQPEGPSFRVRGYFVEWQKWNFRIGFTPREGLVIHSVAYVDGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WSLKSPVPPGPAPPLQ-FYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPD-----NGTGGS 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DKQVVALADAYFFPPFQPSLLPRTKSGPVIPMKLPPRRARLVVY---NQKSNETSVWIVA 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----PSRRLAKPLIYCRT--DSDSPMENGYARPVEGIYVLVDMQNMVVIEFEDRESRGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----FIEAMKR-----RGIEDMDLVMVDPWCVGYHSEADA---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LHHCCFYKHRGRNLVTMTTAPRGLQSGDRA----TWFGLYYNISGAGFFLHHVGLELLVNH 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SVSPSAQPWTHPGQSQLFADLS------REELTAVMRFLTQRLGPGLVDAAQARP 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----LSEVHAVTRGGHHRGRVVSSQVIPDVQPPMDAAEYAECEAIV--KDFPP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLPHPSYMRDVTVERHGG------PLPYHRRPVLFQEYLDIDQMIFNRELPQASGL 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SDNCVFSVELQ-LPPKAAALAHLDRGSP-----PPAREALAIVFFGRQPQPNVSELVVG 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SYMPRIET-KHPLDPLSAAEISVAVATVRAAGANPEVRDGMRF-----IEVASVEP 120
                                                                                                                                                  (first entry)
                                                                                                                       polypeptide
                                                                                                                                                                                                                                                                                                            697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98;
                                                                                            herbicide
                                                                                                                      SEQ
                                                                                                                                                                                                           Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                       ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  327;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels 147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                             649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29;
```

```
RESULT 8
AAR94370
Ş
                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 74
                                                                                  Strain M-62; amine oxidase; butyl amine; benzylamine; or recombinant production.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are
                            JP08070872-A
                                                       Aspergillus niger
                                                                                                                                               A. niger strain M-62 amine
                                                                                                                                                                          20-NOV-1996 (first entry)
                                                                                                                                                                                                                                         AAR94370 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 5; SEQ ID NO 2121; 261pp + Sequence Listing; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              organisms -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Identifying plant target proteins for herbicidally active compounds comprising aligning and comparing nucleic acid or amino acid sequent from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-269010/31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               useful as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tietjen K, Weidler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (FARB )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-AUG-2001;
                                                                                                                                                                                                                                                                                                                   244
                                                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                                                                        127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KVTLVVRMVASVGNYDYIIDYEFQTDGVMRAKVGLSGML---MVKGTTYENKNQVKKDKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGK------
                                                                                                                                                                                                                                                                                                                TLGFHHIPCQEDFPIMPTVSS--SFDLKPVNFFERNPILKAAPNFEY
                                                                                                                                                                                                                                                                                                                                              TAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYF
                                                                                                                                                                                                                                                                                                                                                                          PPQKRGAFTNNQIWVTPYNKSEQWASGLFTYQSHGDDTLAVWSD--RDRDIENKDIVVWY 243
                                                                                                                                                                                                                                                                                                                                                                                                       SMARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD-FSDFINNETIAGKDLVAWV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                RLQVTRKLLEMEEQAAFLVGSATP-RYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GNEEELYGTILSENVIGVIHDHYVTFYLDLDVDGPDNSFVKVNLKRQETAPGESPRKSY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                   -MKAVRNIVKTEKDGQIKLSLYDPSEYHVINPGKTTRVGNPTGYKVVPRATAASLLDHDD 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BAYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ξ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6.1%; Score 246.5; DB 23; 25.8%; Pred. No. 5.2e-16; tive 53; Mismatches 133;
                                                                                                   oxidative
                                                                                                                                                 oxidase
                                                                                                                                                                                                                                         670
                                                                                                                 formation; hydrogen peroxide;
                                                                                                                                                                                                                                         ⋧
                                                                                                    deamination;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                              706
                                                                                                                                                                                                                                                                                                                288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7;
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
õ
                                 밁
                                                              S
                                                                                                     밁
                                                                                                                                   8
                                                                                                                                                                      밁
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present sequence is the A. niger strain M-62 amine oxidase (AO), which is used in the formation of hydrogen peroxide from butyl amine, or benzylamine by oxidative deamination. The AO gene the sequence of which was determined by sequencing a restriction enzyme map of an AO gene contg. cDNA, can be used for the recombinant prodn. of AO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 3; Pages 9-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1996-203152/21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          05-SEP-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TOKU ) TOKUYAMA SODA KK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                        447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109
                                   504
                                                                                                                                      499
                                                                                                                                                                                                                                          345
                                                                                                                                                                                                                                                                           391
                                                                                                                                                                                                                                                                                                                                               332
                                                                                                                                                                                                                                                                                                                                                                               235
                                                                                                                                                                                                                                                                                                                                                                                                                 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                217
                                                                                                                                                                        399
                                                                                                                                                                                                                                                                                                             288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34 HPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Loca 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YMR---DVTVER-HGGPLPYHRRPVLFQEYL-DIDQMIFNRELPQA------SGL--- 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   butyl amine, or benzylamine by oxidative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     encoding amine oxidase - used in formation of hydrogen butyl amine, or benzylamine by oxidative de:amination
                                                                                                                                                                                                                                                                        YVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETV----LVVRSM 446
                                                                                                                                                                                                                                                                                                          ---YDGRSVLYRLSVSEMTVPYADPRPPFHRKQAFDFGDGGGGNMANNLSIGCDCLGVIK 344
                                                                                                                                                                                                                                                                                                                                           DVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDCPYLAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LTLSEFDTLVERCFASP------LFQKALADFD------LPEGFEVVIEPYGGLDYV 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LALEHSGRLSPTSPRPPRLALCQYDVIGNDRIPSFEESVVDVGTRQRVQHRVVGKEHHAS 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AALAH---LDRGSPPPAREALA---IVFFGRQP-----QPNVSELVVGPLPHPS 131
WERYQLAVTORKEEEPSSSSVFN-QNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFLH
                                 AGFF--DAAPELNRTVKMVNPHKKNPISQK---PVGYKFIPLATQRLLADPNSIQARRAQ
                                                                                                   PEPPAHFLCAHRP---GYYGPNNSVQVEESHPVPMNAVTNPNGNFYKVNT----ETMER
                                                                                                                                                                                                      STLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY----GNQVSE----HTLG
                                                                                                                                                                                                                                        YFDAVMTGADGSAKKMPNAICLHEQDNGIGWK-----HSNWRTGRAVVTRHRELVVQFI 398
                                                                                                                                                                                                                                                                                                                                                                             PGGTRKDLKPLN-----VVQPEGPSFRITEESLVEWQKWRFRVAFNPRRGCYHSQTSW
                                                                                                                                                                                                                                                                                                                                                                                                             TGGSWSLKSPVPPGPAPPLQFYPQGPRFSV-QGSRVASSLWTFSFGL----GAFSGPRIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                 EGLTEQTFKRDIIGHCKDSD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNG 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EEKRRYFQGLCFATDKRKNNPDANFYSYPLPLIPVMDGAYPGDHSGRPSR-----HRCKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----LHHCCFYKHRGRN-------LVTMTTAPRGLQSGDRATWFGLYYNISG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HP-----IAILSEEETNIARNVILAQHPNTVIDFRE-----IYLSEPPKAQLLEF 48
                                                               AAFLYGSATP---RYLYLASNH----SNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFS
                                                                                                                                   ---TVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQ
                                                                                                                                                                     ITLANYEYIFAYKFDQSGGITGRVACHGYLE-----RGQHRCWQGQRVRQRRQWRRVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              670 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94JP-0211526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94JP-0211526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 214.5; DB 17; Pred. No. 3.7e-12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels 197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                               ---YVPELL 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   peroxide
                                                                                                                                                                                                        498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88
                                                                                                                                                                      451
                                                                                                                                                                                                                                                                                                                                                                             287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37;
```

```
RESULT 9
AAB42952
ID AAB4
Q
                                                                                                                                                                                                                        AAB42952 standard;
                                                                                                                                                                                           Human; open reading frame; ORFX; detection; cytostatic; hepatotropic;
                                                                                                                                                                                                  Human ORFX ORF2716 polypeptide sequence
                                                                                                                                                                                                                                         617 NPRVEDWP -- VMPVEIFQLMIRPADFFTANPS 646
                                                                                                                                                                                                                                                       559
                                                                                                                                                                                                                                                       IPHAEDIPHTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                        Protein;
                                                                                                                                                                                                         entry)
                                                                                                                                                                                                                        863
                                                                                                                                                                                                                                                697
                                                                                                                                                                                                  SEQ
                                                                                                                                                                                                   ID NO:5432
                                                                                                                                                                                     cardiant;
                                                                                                                                                                                                                                                       616
```

vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective; anticonvulsant; osteopathic; antiarthritic; immunosuppressant; cardiant; immunostimulant; thrombolytic; coagulant; vasotropic; antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antiviral; antibacterial; antifungal; antirheumatic; antithyroid; antithanaemic; gene therapy; cancer; proliferative disorder; hypottension neurodegenerative disorder; osteoarthritis; graft vs host disease; cardiovascular disease; diabetes mellitus; hypothyroidism; SCID; AIDS; cholesterol ester storage; systemic lupus erythematosus; infection; severe combined immunodeficiency; malaria; autoimmune disorder; asthma; allergy; aplastic anaemia; nocturnal haemoglobinuria; burn; wound; bone damage; cartilage damage; antiinflammatory hypertension;

Homo sapiens.

31-MAR-2000; 2000WO-US08621.

31-MAR-1999; 02-APR-1999; 05-APR-1999; 30-MAR-2000; 99US-0127607. 99US-0127636. 99US-0127728.

2000US-0540763

(CURA-) CURAGEN CORP

Shimkets RA, Leach

WPI; 2000-602362/57. N-PSDB; AAC77161.

Novel nucleic acids and peptides derived from open reading useful for treating e.g. cancers, proliferative disorders, neurodegenerative disorders and cardiovascular disease -

×

Claim 11; Page 4615-4617; 5507pp; English

AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397, which represent the human ORFX open reading frames 1 to 3161. The ORFX sequences have activities such as: cytostatic; hepatotropic; vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective; osteopathic; anticonvulsant; antiarthritic; immunosuppressant; immunostimulant; cardiant; thrombolytic; coagulant; vasotropic; antiidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antibacterial; antiviral; antifungal; antirheumatic; antithyroid; and antianaemic. The sequences can be used for determining the presence of or predisposition to, or preventing or treating pathological conditions associated with an ORFX-associated disorder. The nucleic acids can be used to express ORFX proteins in gene therapy vectors. The proteins and nucleic acids may be used to treat cancers,

```
RESULT 10
ABB920
ID ABB92
XX ABB92
XX ABB92
XX ABB92
XX ABB92
XX Herbi
XX Herbi
XX Herbi
XX Herbi
XX Herbi
XX Herbi
XX O7-FE
XX 28-AU
XX 28-AU
XX 28-AU
XX 11etj
PA (FARB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9999999888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bacterial or fungal infection, malaria, autoimmune disorders, asthma, allergies, aplastic anaemia, burns, wounds, bone and cartilage damage, nocturnal haemoglobinuria, antinflammatory disease; to enhance coagulation; to inhibit thrombosis; and as a contraceptive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 graft vs host disease, cardiovascular disease, diabetes mellitus, hypertension, hypothyroidism, cholesterol ester storage, systemic lupus erythematosus, severe combined immunodeficiency (SCID), AIDS, viral,
             Tietjen K,
                                                                                                                               07-FEB-2002
                                                                                                                                                                                                                     Herbicidal;
                                                                     28-AUG-2001; 2001WO-EP09892
                                                                                                28-AUG-2001; 2001WO-EP09892
                                                                                                                                                            WO200210210-A2
                                                                                                                                                                                       Arabidopsis
                                                                                                                                                                                                                                                Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                       ABB92909 standard; Protein;
                                                                                                                                                                                                                                                                              31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                   689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      549
                                                                                                                                                                                                                                                                                                                                                                                                                                              364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GDGGEPSQLPHCPSVSP--SAQPWTHP----GQSQLFADLSREELTAVMRFLTQRLGPGL 64
                                                                                                                                                                                                                                                                                                                                                                                                                DRINASYGMLGQSPPLHRSPD--FLLSY 714
                                                                                                                                                                                                                                                                                                                                                                                                                                           RYVDGGFGMGKYTTPLTRGVDCPYLATY 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SELVVGPLPHPS---YMRDVTVERHG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPARE----ALAIVFFGRQPQPNV 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGAPASATPTPALSPGRSLRPHLIPLLLRGAEAPLTDACQQEMCSKLRGAQGPLGP-- 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGN---SP-AAMTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----GGGRDAPEAAAQSPCSVPSQVPTPGFFSPAPRECLPPFLGVPKPGLYPLGPP-SFQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNGTGGS-----QFYPQGPRFSVQ 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYN 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSSPA-PVWRSSLG----PPAPLD---RGENLYYEIGASEGSPYSGPTRSWSPFRSMPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIP 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SQQECGGTPPASQSPFHRSLSLEVGGEPLGTSGSGPPPNSLAHPGAWVPGPPPYLPR--- 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----DMESPLPPPPLSLLRPGGAPPPPPKNPARLMALALAERAQQVAEQQ 491
                                           BAYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   863 AA;
             Weidler M;
                                                                                                                                                                                        thaliana
                                                                                                                                                                                                                  plant; agriculture;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34;
                                                                                                                                                                                                                                                                                                                                         460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 127; DB
Pred. No. 0.004
34; Mismatches
                                                                                                                                                                                                                                                 SEQ
                                                                                                                                                                                                                     herbicide
                                                                                                                                                                                                                                                                                                                                         ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----RSQRPMGTSRRGLRGP------
                                                                                                                                                                                                                                                 ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----AQVSAQLRAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 21;
.0048;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         126;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 863;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels 188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----GPLPYHRRPVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22;
```

```
XX E X E X E X E X
                                                                                                                                                                                                                                           AAB07564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are fully in the control of the comparing them are the control of the contr
BLM gene cluster;
                                                   Protein encoded by the bleomycin (BLM) gene cluster ORF30.
                                                                                                                                                                 AAB07564;
                                                                                                                                                                                                              AAB07564 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 5; SEQ ID NO 2120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI;
                                                                                                           20-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              useful as
                                                                                                                                                                                                                                                                                                                                                       442 YAGDIAWRH
                                                                                                                                                                                                                                                                                                                                                                                                               416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12 DGGEPSQLPHCPSVS-------PSAQPWTHPGQSQL----FADLSREELTAVM 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGEYGFGLQAMPLEPVAEPKNLFIGPLNDCPRNAVYMDGTFAAADGTPYVRENMICVFES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NWEFHLKPDPRAGL-IMSQVKIHDPDTQETREVMYKGFVSELFVPYMDPSEAWYFKTYMD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DTPNFYMRPIEGLTLL-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-----SHLLIVDL---STSR---VDQADSPVPESGYPIVTSEEMDSAASAPFSNADFNR 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GG-FGMGKYTTPLTRGV-------DCPYLATYVDWHFLLESQAPKTIRDAFCVFEQ 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ELPOASGLLHHCCFYKHRGRNLVTMTTAPRGLOSGDRATWFG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLD-----IDQMIFNR 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SILSSH-----ALFASRVPHLLNSVVLEEPDK-NLVRQWEKGDQLPPRKASVIARVGG 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGR 113
                                                                                                                                                                                                                                                                                                                                                                                                               NOGLPLRRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DTGQ-----SIPIPGSTNTDYRYSTLPNHDKTRPLNTISLEQPRGPSFVIEDNHLVKWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNGTGGSWSLKSPVPPGPAPPLQF-------YPQGPRFSVQGSRVAS-S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGAGFFLHHV-GLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIP 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TI----WFGNKDDNTKRVTKIQCFSTQ 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DCTKSSSSPFCASRNFLFNKNTRPISKNIPKTKPKNHDHVSDTPNHPLDPLTVMEINKVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2002-269010/31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LWTFSF-----GLGAFSGPRIFDVRFQGER-LVYEISLQEALAIYGGNSPAAMTTRYVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                         450
                                                                                                                                                                                                                                                                                                                                                                                                               424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ξ,
bleomycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261pp + Sequence Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            49;
                                                                                                                                                                                                                    2675
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 125.5; DB Pred. No. 0.0024;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                    À
  cluster;
polyketide metabolite;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----FDLDTKRILEIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 460;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22;
```

```
Ş
                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                        밁
                                                                                                                                       Š
                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
 õ
                                    밁
                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 2.9%; Score 115; DB 21; Best Local Similarity 18.9%; Pred. No. 0.52; Matches 172; Conservative 107; Mismatches 321;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AABO7556-78 represent proteins encoded by open reading frames (ORFs) 8 to 30 of the BLM (Bleomycin) gene cluster. The proteins encoded by the gene cluster are useful for producing peptides and/or polyketide metabolites, especially bleomycin or bleomycin analogues. They are also useful for chemically modifying biological molecules to produce branched methyl groups, and for coupling amino acids and fatty acids. They may be reacted with an apo-carrier protein and coenzyme A to produce a holo-carrier protein. The BLM gene cluster or catalytic domains can be used individually or collectively to produce thiszolidne, thiszoline, bithiszoline and bithiszoline-containing microbial metabolites. The BLM gene cluster may also be used to produce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           06-JAN-1999;
05-FEB-1999;
05-JAN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bleomycin; bleomycin analogue; holo-carrier protein; thiazolidine; thiazoline; bithiazoline; microbial metabolite; sugar.
                                                                                                                                                                             1484
                                                                                                                                                                                                                                                                                                                                                                                           1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New bleomycin gene cluster components useful for peptide and/or polyketide metabolites, especially bleomycin, production and for chemically modifying biological molecules -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2000-465974/40.
N-PSDB; AAA58471.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Shen B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  06-JAN-2000; 2000WO-US00445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200040704-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptomyces verticillus
                                                                                                          1528
                                                                                                                                                                                                                                               1441 VLDGRLRPLP---RPVPGELYL-------GGACLAH-GYHHDPALTAARFLPAP 1483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Page 97-137; 162pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (REGC ) UNIV CALIFORNIA
                                                                                                                                                                                                                                                                                                                   1388 AAAVNRAAGLLDARLYNLYGPTEAAVDVTAWPCRPPEP-----GPVPIGLPIANTTTE 1440
                                  1583 TLLDRLPLTPAGKLDRRALPHPSAPP----PDGGRPPTTGTERLVARVW-------
                                                                                                                                                                                                              197
                                                                                                                                           254
                                                                                                                                                                                                                                                                                    140
                                                                                                                                                                                                                                                                                                                                                        86
                                                                                                                                                                                                                                                                                                                                                                                                                            29
                                                                                                                                                                                                                                                                                                                                                 PKAA--ALAHLDR---GSPPPAREALAIVFFG-RQPQPNVSELVVGPLPHPSYMRDVTVE 139
                                                                                                                                                                            GGGRRYRTGDL-----VRQRADGALVFRGRTDDQVKIGGIRVEP------GEVAE
                                                                                                                                                                                                                                                                                RHGG---PLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAP 196
                                                                                                                                                                                                                                                                                                                                                                                         ARPGTHRDPARLVRRIAREAVTTV-HFVPSMLTPFLTELARGTTRLPALRRVVCSGEELP 1387
                                                                                                                                                                                                                                                                                                                                                                                                                    AQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQAR----PSDNCVFSVELQLP
PRIFDVREQGERLVYE-ISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCP
                                                                                                        ALRAL----PGVADAAVVPHDGRLAAYAVADPVGPAPAADALRDALRRRLPGHLVPAAL
                                                                                                                                       SLAQLEAQFEAGLYNYVLIPDNGTGGSWSLKSPVPPGP----------
                                                                                                                                                                                                             RG---LQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2675 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0477962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0115435
99US-0118848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sanchez
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chen
                                                                     APPLQFYPQGPRFSVQGS-RVASSLWTFSFGLGAFSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ĭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Edwards
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뒫
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 2675;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                             310;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                        1582
                                                                                                                                                                            1527
                                                                                                                                                                                                             253
                                                                     327
                                                                                                                                           291
                                                                                                                                                                                                                                                                                                                                                                                                                                                             42;
```

```
RESULT 12
AAR32999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
2032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1628 -----AERLGREVVGVDRDFFSLGGDSVRALGVTAALRAAGLPVTVTDLLRLPTVA 1678
                                                                                                                                                                      Peptide
Peptide
Peptide
                                                                                                                                                                                                                                                                                    CK; epitope; tumour; diagnostic; antibodies; distribution; liver;
                                                                                                                                                                                                                                                                                                                                     14-JUN-1993
                                                                                                                                                                                                                                                                                                                                                              AAR32999;
                                                                                                                                                                                                                                                                                                                                                                                     AAR32999 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2123 RAAADAPHRP 2132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1796 ----VESSDPAGFDAWLHAERKRPLDVGTGPLARFTAHDAGAAGFRLTVSSFALDGWCVA
                                                                                                                                                                                                                                                 Rattus
                                                                                                                                                                                                                                                                        cranial nerve disease
                                                                                                                                                                                                                                                                                                             Rat choline kinase
                       WPI; 1993-070176/09
                                                                                              17-SEP-1991;
                                                                                                                        26-JAN-1993
                                                                                                                                                JP05015367-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           613
                                             (MITK ) MITSUI TOATSU CHEM INC
                                                                       14-SEP-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           725 QAAACAPDLP 734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YLATYVDWH------FLL--ESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLTAHENVDATDGGGLRLLLESDPREEPDEQVAEFAA---YYRR-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LAQAQR---DHGAAGLED-----TLFVFTHFHLYRALADLDGMA---VSDLRAPDQTYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LAVTORKEEEPSSSSVFNONDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DYITAVETHGRLERHDGDRVLGVFNNILPLRQRVDGGSWADLARAAHAAEARTGEYRRYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RYLYLASNHSNKWGH-------PRGYRIQMLSFAGEPLPQNSSMARGFSWERYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRRPVPPPGPDGIRQHRHVVPVEDTVAKGLSALAGELGVGLKHVLLGVHLRVVRALSGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORLOVT ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TVLTELLRDYWSALRGAPLSLPAPAASYREFVALERAAQHDPAHREFWRTELAGARPHPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EDMVFV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VYVTSVAVSTPLDRTRLAAAVDRLLDRHAYLRSSFDLVSHPEPTQLVWTHLPTPLEV---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYFGGLA-----ETVLVVRSMSTLLN-YDYV---WDTVFHPSGA-----IEIRFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALARHADERADRRPARQETPPGPFALCPEAAGVPGLEDAYPMSMAQRAVLFHRDHNPGYE 1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PNT-----VTVGNGVGFFLR--PYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGYISSAFLFG-----ATGKYGNQVSEHTLGTVHTH---SAHFKVDLDVAGLENWVWA 522
                                                                                                                                                                                                                                                 rattus
                                                                                                                                                                                                                                                                                                                                    (first
                                                                       90JP-0242528
                                                                                              91JP-0262516
                                                                                                                                                                       278..327
328..360
398..412
                                                                                                                                                                                                           Location/Qualifiers 139..225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----RKLLEMEEQAA----
                                                                                                                                                                                                                                                                                                                                                                                     Protein;
                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -PMAVP-----HQL
                                                                                                                                                                                                                                                                                                                                                                                     435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --FLVG-----SATP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----AL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
```

N-PSDB; AAQ37687

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FFX 8X 300000000000X &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The choline kinase (CK) gene may be obtd. from rat brain, human brain, human liver, chicken liver, egg, soy bean, etc. The rat CK gene is shown, and can be isolated by PCR using oligonucleotides corresp. to partial CK sequences as primers. The oligonucleotides or the amplified DNA fragments, can then be used as probes to detect CK coding sequences. Rat CK may be purified by MMA-agarose affinity chromatography. A large ant. of CK may be produced and antibodies against CK may be obtd. for use in detecting the distribution of CK in tissues or cells, and the diagnosis of cranial nerve disease,
                                                                                                                                                            Human; chromosome mapping; gene mapping; gene therapy; forensic; food supplement; medical imaging; diagnostic; genetic disorder.
31-MAR-2000; 2000US-0540217
                               30-MAR-2001; 2001WO-US08631
                                                                    11-OCT-2001
                                                                                                                                                                                                                                                      18-FEB-2002
                                                                                                                                                                                                                                                                                                                      ABG13153 standard; Protein; 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 1; Page 21; 26pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rat choline kinase having specified DNA sequence - useful for diagnosing cranial nerve diseases, liver diseases, tumours, etc.
                                                                                                    WO200175067-A2
                                                                                                                                                                                                                 Novel human diagnostic protein #13144.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                            327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          liver disease and tumours.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          364 RYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQ----NQGLP 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              249 GRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQG 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SRVASSLWTFSFGLGAFSGPR-----IFDVRFQGERLVYEISLQEALAIYGGNSPAAWTT 363
                                                                                                                                                                                                                                                                                                                                                                                                           EWMYDYTY 334
                                                                                                                                                                                                                                                                                                                                                                                                                                            KWGHPRGY 584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LRSLLQYTRSPVVFCHNDCQEGNILLLEGQENSEKQKLMLIDFEYSSYNYRGFDIGNHFC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --LFGTMEKYLNQVLR------LKFSREARVQQLHK-----FLSYNLPLELEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEH 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LRRHHSD--LYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISS 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRRRAYLWCKEFLPGAWRGLREDQFHISVIRGGLRNMLFQCSLPDSIASV-GDEPRKVLL 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GOORDAAGELESKOLGGRSOPLALPPPPPPP-----PLPLPPPPPSPPLADEOPAPR----- 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QLQRLQVTRK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SRRLDTEELCLPDISAEIAEKMATFHGMKMPFNKEPKW-----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RL-----YGAILKMGAEAMVLESVMFAILAERSLGPK----LYGIFPQGRLEQFIP 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          435 AA;
                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.7%;
21.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 109;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -LLE----MEEQAAFLVGSATPRYLYLA---SNHSN 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 14; Length 435;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14;
```

```
RESULT 14
AAE23407
ΧIJ
                                                                                                                                            Ş
                                                                                                                                                                                   밁
                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for identifying expressed genes. (I) is useful in gene therapy techniques (II). (II) is useful in gene therapy techniques (II). (II) is useful for generating antibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (I) and (II) are useful for treating disorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in diagnostics, forensics, gene mapping, identification of mutations cresponsible for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and camino acid sequences. ABG00010-ABG30377 represent novel human conditions of the sequence of the invention.

Conditional conditions of this pattent did not appear in the printed specification, but was obtained in electronic format directly from WIPO at fig. wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
               AAE23407 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        polypeptide (II) sequences. (I) is useful as hybridisation probes, polymerase chain reaction (PCR) primers, oligomers, and for chromosome and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 20; SEQ ID No 43512; 103pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutation responsible for genetic disorders or other traits and to assess
                                                                                                                                                                                                                                                                                                                                                                                                            266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (HYSE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23-AUG-2000; 2000US-0649167.
                                                                                                           435 LAWQR 439
                                                                                                                                                606
                                                                                                                                                                                   404
                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                 486
                                                                                                                                                                                                                                                                                                                                      309
                                                                                                                                                                                                                                                                                                                                                                         436
                                                                                                                                                                                                                                                                                                                                                                                                                                            384 DCPY--LATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL----YSHYFGG 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   211 LKAEGERAVYQIMQLQKLVNMFGGD----LTRRYGQKVHKLTLHGGFSCPNRDGTIGRG- 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      333 VRFQGERLVYEI-SLQEALAIYGGNSPAAMTTRY-----VDGGFGMGKYTTPLTRGV 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  invention relates to isolated polynucleotide (I) and
                                                                                                                                                                                     NNKVYE----
                                                                                                                                                                                                                                                                                                                                                                                                    GCTFCNVASFAD-----EAQQHRSIAEQLA------HQANLVNRAKRYLGYFQA 308
                                                                                                                                                FSWER 610
                                                                                                                                                                                                                   TRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
                                                                                                                                                                                                                                                          PFYGRQAPTADVAKIEAPLLLHFAELDTRINEGW----
                                                                                                                                                                                                                                                                                             GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQV
                                                                                                                                                                                                                                                                                                                                YTSTFAEVQVLRSM-----YQQAVEHTTGKVGITGFCYGGGVSNAAAVAYPELACAV 360
                                                                                                                                                                                                                                                                                                                                                                   LAET ---VLVVRSMSTLLNYDYVWDTVFHPSGAIEIR-FYATGYISSAF-----LFGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2001-639362/73.
DB; AAS77340.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HYSEQ INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         446 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Liu C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.7%;
                                                                                                                                                                                 ----AYIYPGVNH-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ΥT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               39;
               617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 106.5; I
Pred. No. 0.2;
39; Mismatches
               ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98;
                                                                                                                                                                                 -GFHNDSTPRYDKSAAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 446;
                                                                                                                                                                                                                                                        --PAYE-AALKA 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mutations
o assess
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                     605
                                                                                                                                                                                                                                                                                                                                                                     485
```

16;

18;

```
Amino acid oxidase;
corn rootworm; CRW;
CPB; lysine oxidase;
                                                                                                                                                                                                                                                                                                                                                                                                      Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                  Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mutein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27 - AUG - 2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAE23407;
                                                                                                                                                                                                                                                                                                                                                                          Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lysine oxidase
                                                                                                                                                                                                                                                                                                                  Misc-difference
                                                                                                                                                                                                                                                                                                                                              Misc-difference
The invention relates to composition and methods for controlling coleopteran insect infestation of plants, by co-expressing an amino acid oxidase and a second enzyme that provides insecticidal activity when present in a mixture with the amino acid oxidase. Nucleic acid
                                                                                                                                                                                                                                                  Misc-difference
                                                                                                                                                                                                                                                                    Misc-difference
                                                                                                                                                                                                                                                                                       Misc-difference
                                                                  comprises a
                                                                           Composition for controlling coleopteran insect infestation of plants, such as Diabrotica, Melanotus, Leptinotarsa, or Anthonomus infestation,
                                                                                                       WPI; 2002-424731/45
                                                                                                                                            (MONS ) MONSANTO TECHNOLOGY LLC.
                                                                                                                                                               21-APR-1997;
                                                                                                                                                                                 21-APR-1998;
                                                                                                                                                                                                    16-APR-2002.
                                                                                                                                                                                                                       US6372211-B1
                                               Example 13;
                                                                                                                          BG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mutant.
                                                                                                                         Greenplate
                                                 Column 89-94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                  lysine
                                                                                                                                                                                                                                             /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   proenzyme mut3
                                                                                                                                                                                                                                                                                                                                                                                                                               /note-
75
                                                                                                                                                                                                                                                                                                                                                                         /note=
77
                                                                                                                                                               97US-044504P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note- "Wild-type Ala
71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note-
70
                                                                                                                                                                                 98US-0063733
                                                                                                                                                                                                                                                                                       /note=
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers 68..86
                                                                                                                                                                                                                                                                                                                                                                                                      /note=
76
                                                                                                                                                                                                                                                                                                                  /note-
79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note- "Wild-type Leu substituted with Gly" 73
                                                                                                                                                                                                                                        /note-
                                                                                                                                                                                                                                                                             /note-
                                                                                                                                                                                                                                                                                               /label= Unknown
/note= "Wild-type Glu
                                                                                                                                                                                                                                                                                                                                     /label- Unknown
                                                                                                                                                                                                                                                                                                                                                       note-
                                                                                                                                                                                                                                                                                                                                                                                             /label- Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note- "Wild-type Leu substituted with Gly"
                                                                                                                                                                                                                                                                                                                                                                 'label= Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                         ʻlabel≖ Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                   'label- Unknown
                                                                  oxidase enzyme and a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            insect infestation; gene therapy; boll weevil;
insecticide; wireworm; WW; Colorado potato bee;
tedanalactam synthase; enzyme; E.C. 1.4.3.2;
                                                                                                                          'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Protease sensitive region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Wild-type
                                                                                                                                                                                                                                        "Wild-type Leu
                                                                                                                                                                                                                                                          "Wild-type Glu
                                                                                                                                                                                                                                                                             "Wild-type Glu
                                                                                                                                                                                                                                                                                                                           "Wild-type Ala substituted
                                                                                                                                                                                                                                                                                                                                                       "Wild-type
                                                                                                                                                                                                                                                                                                                                                                                 "Wild-type Pro
                                                                                                                                                                                                                                                                                                                                                                                                             "Wild-type
                                                                                                                                                                                                                                                                                                                                                                                                                                          "Wild-type
                                               77pp; English.
                                                                                                                          Purcell JP,
                                                                                                                                                                                                                                                                                                                                                      Arg
                                                                                                                                                                                                                                                                                                                                                                                                               Ala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lys
                                                                                                                                                                                                                                                                                                                                                                                                                                          Glu substituted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            substituted
                                                                                                                                                                                                                                                                                                substituted
                                                                                                                                                                                                                                                                                                                                                                                   substituted
                                                                                                                                                                                                                                                                                                                                                                                                               substituted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     substituted
                                                                                                                                                                                                                                         substituted
                                                                                                                                                                                                                                                            substituted
                                                                                                                                                                                                                                                                              substituted
                                                                                                                                                                                                                                                                                                                                                        substituted
                                                                                                                          Romano
                                                                    tedanalactam
                                                                                                                          CP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            with Gly"
                                                                                                                                                                                                                                                                              with
                                                                                                                                                                                                                                                                                                with
                                                                                                                                                                                                                                                                                                                                                                                                                                           with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      with Gly"
                                                                                                                                                                                                                                         with
                                                                                                                                                                                                                                                                                                                             with
                                                                                                                                                                                                                                                                                                                                                         with
                                                                                                                                                                                                                                                                                                                                                                                   with
                                                                                                                                                                                                                                                                                                                                                                                                               with
                                                                                                                                                                                                                                                            with
                                                                   synthase
                                                                                                                                                                                                                                         Gly"
                                                                                                                                                                                                                                                           Gly"
                                                                                                                                                                                                                                                                                                 Xaa"
                                                                                                                                                                                                                                                                                                                             Xaa"
                                                                                                                                                                                                                                                                              Gly"
                                                                    enzyme
```

```
RESULT 15
ABB67526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequences encoding these enzymes are used in gene therapy. The composition is used to control insect infestation of plants. It is used to control coleopteran species Diabrotica, Anthonomus, Melanotus, or Leptinotarsa. It is especially used to control boll weevil (BWV), corn rootworm (CRW), wireworm (WW) or Colorado potato beetle (CPB). The composition can also be used to transform plants that can express the enzymes of the composition. The present sequence is a lysine oxidase (E.C. 1.4.3.2) proenzyme mutant used in the exemplification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of the invention.
                                                                                                                                                                                                                            Drosophila melanogaster.
                                                                                                                                                                                                                                                                                        Drosophila melanogaster polypeptide
                                                                                                                                                                                                                                                                                                                  26-MAR-2002
                                                                                                                                                                                                                                                                                                                                           ABB67526;
                                                                                                                                                                                                                                                                                                                                                                   ABB67526 standard; Protein;
                                                                                                              23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                            27-SEP-2001.
                                                                                                                                                                                                     WO200171042-A2
                                                                                                                                                                                                                                                      pharmaceutical.
                                                                                                                                                                                                                                                                  Drosophila;
                                     WPI; 2001-656860/75
                                                              Venter
                                                                                                                                                   23-MAR-2001; 2001WO-US09231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           145
                                                                                      (PEKE )
                                                                                                                                                                                                                                                                                                                                                                                                                                 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                         317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18 LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSIK----PGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44 LSREELTAVMRFLTQRLG--PGLVDAAQAR-----PSDNCVFSVELQLPPKAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEKLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPYHRRPVLFQEYLDIDOMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHGGP 144
                                                                                                                                                                                                                                                                                                                                                                                                                                -----TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATWFGLYYNISGAGFFLHHVGLELLVN------HKALDPARWTIQKVFYQGRYYDSLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LYTHHFTDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  XXXXXXGGGPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTGGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                       TFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  79;
                                                              તું,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                       PΕ
                          ABL11629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF----FAIQWMETQN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  617 AA;
                                                                                       CORP NY.
                                                                                                                                                                                                                                                                  developmental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                             Adams M,
                                                                                                              2000US-191637P
2000US-0614150
                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22.6%;
                                                              Ľ
                                                              , DWG
                                                                                                                                                                                                                                                                  biology;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40;
                                                                                                                                                                                                                                                                                                                                                                     825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 106; DB Pred. No. 0.38;
                                                              Myers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                  cell
                                                                                                                                                                                                                                                                                           SEQ
                                                              Ľ
                                                                                                                                                                                                                                                                  signalling; insecticide.
                                                                                                                                                                                                                                                                                           ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23;
                                                                                                                                                                                                                                                                                           29370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                          357
                                                                                                                                                                                                                                                                                                                                                                                                                                 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    273
```

New isolated

nucleic

acid

detection

reagent

for detecting

1000

ç

more

Job time : 46 secs

```
Query Match 2.6
Best Local Similarity 18.7
Matches 132; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention is useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABLI6176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins (ABB5737-ABB72072).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disclosure; SEQ ID NO 29370; 21pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genes from Drosophila and interactions -
680 ----AYEQQPDQQQQQQQQQEMPVQEQLMQQEQQQQQEAYPETEATP 721
                                                                                                                                                                                       471 YATGYISSAF----LFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMV 526
                                                                                                                                               627
                                                                                                                                                                                                                                                                             577
                                                                                                                                                                                                                                                                                                                                         428
                                                                                                                                                                                                                                                                                                                                                                                     531 DASSYGDASEPIYASIDS-------ANQQPMQSAKVEPLYSE-IGNPADYQHQS 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                471 AAAVAGVASPEAMAAAPTKGFFDNLAANPSPEEHQEVEQQQQQQQSTQQVEPELSGYGQY 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      349 ALAIYGGNSPAAMTTRYYDGGF------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               436 PS-----SQDPKTGVSIENIENAIY------GERLTGAAGAGAGL------P 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           289 PGPAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQE 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    410 KASRAALERAAAAVDEQLARGN-----QLS------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         229 LVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVP 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     183 KHRGRNLVTMTTAPRG------LQSGDRATWFGLYYNISGAGFFLHHVGL-----EL 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       196 QPHLTGDYQAELGGRSQPSASAAAGPAAATPTSTLSSQEKGAQQLSSTSSTLATSSLTFD 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  142 GPPMQPPTMPAGHPVYYPELFAGTTAPLGTSNLF-----DLRATLRAFDNENADLPERM 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       316 NEPGQEKQTLREQQHHEPQQQHQQPSHDFEAYFGELKIDESSWQSGQP-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            256 KLPKTSSPSLTLTELPTAGVATPGHDVGGQPQRDAADLDGWTNSRVTKVEYEKSPTVVGH 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99 --PPPAREALAIVFF------GRQPQPNVSEL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 GPGLVDAAQARPSDNCVFSVELQLPPKAA----ALAHLDRGS------ 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14 GEPSQLPHCPSVSPSAQP-----WTHP-GQSQLFADLSREELTAVMRF-----LTQRL 60
                                                           FVPMAVPWSPEHQLQRLQ----VTRKLLEME---EQAAFLVGSATP 565
                                                                                                                       YAAGYDPNAYPGYIYDEATGQY---IADPNATQYATDGSYAGQDYDASAVQNYDYS----
                                                                                                                                                                                                                                                                                                                         LYSHYFGGLAETV---LVVRSMSTLL------NYDYVWDTVFHPSGAIEIRF 470
                                                                                                                                                                                                                                                         -YATDAGAVAADVPAAVAVDGAATTLDASGAGEVLPQEYSNIDY------GNYEADQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----TTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSD 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----TPTPAPSGHEDKRPLNVRSSESGSGVGAGSAVSG-----NVGISNDLLDEV 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LPHPSYMRDVTVERHGGPLPYHRRPVL-FQEY---LDIDQMIFNRELPQASGLLHHCCFY 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      825 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for elucidating cell signalling and cell-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 106; DB 22; Length 825;
Pred. No. 0.62;
8; Mismatches 216; Indels 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels 280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------VVGP 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                         626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 32;
```

B 8

Š

8 8

밁

P Q

Search completed: May 20, 2003, 12:03:14

밁 Š 밁 Š 밁 δÃ 밁 Ş 밁 δÃ 밁 δÃ 밁 δÃ 밁 S

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                               102.5
102.5
101.5
100.5
100
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score
                                                                                                                                                                   seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-081-408-2_COPY_20_763
4010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Issued_Patents_AA:*

1: /cgn2_6/ptodata/

2: /cgn2_6/ptodata/

3: /cgn2_6/ptodata/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 LYCYLLYGRGGDGGEPSQLP.....QAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    May 20, 2003, 12:02:34; Search time 20 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
/cgn2_6/ptodata/2/iaa/Packfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
      1253
617
617
1751
1751
1885
486
486
486
486
486
486
486
486
486
493
3118
493
493
635
635
635
635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapext 0.5
                                 US-09-063-733A-58
US-09-158-767-19
US-09-158-767-20
US-09-163-733A-46
US-09-063-733A-46
US-09-063-733A-57
US-09-063-733A-57
US-09-136-574A-44
US-09-136-574A-44
US-09-136-574A-44
US-09-136-574A-44
US-08-445-463B-8
US-07-737-071A-2
US-08-445-464C-8
US-08-08-44-857D-8
US-08-08-44-857D-8
US-08-08-078-311-12
US-08-078-311-12
US-08-078-311-12
US-08-168-460-402-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (without alignments)
1094.533 Million cell updates/sec
Sequence 14, Appli
Sequence 2, Appli
Sequence 44, Appl
Sequence 8, Appli
Sequence 2, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 12, Appli
Sequence 12, Appli
Sequence 12, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 1, Appli
Sequence 2, Appli
                                                                                                                                                                                                                                                                                                                                                                        Sequence 58, Appl
Sequence 19, Appl
Sequence 20, Appl
Sequence 46, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
     밁
                                                                                                                                TOPOLOGY: 05-09-063-733A-58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-063-733A-58
                                                                 Query Match
Best Local Similarity
Matches 79; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: PO Bo:
CITY: Houston
                         44 LSREELTAVMRFLTQRLG--PGLVDAAQAR------PSDNCVFSVELQLPPKAAA 90
   18 LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSIK----PGGGG 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                 Conservative
```

	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28
	87.5	87.5	87.5	87.5	88.5	88.5	88.5	88.5	88.5	89	89	89.5	89.5	89.5	90	90.5	90.5	90.5
	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3		2.3
	485	485	485	353	583	512	512	512	379	747	889	911	630	623	617	1467	1436	1436
	4	ω	ω	4	4	տ	Ь	-	ω	4	4	4	4	سر	4	4	w	2
ALIGNMENTS	US-08-044-857D-2	US-08-445-464C-2	US-08-445-463B-2	US-08-838-151A-49	US-09-401-476-2	PCT-US95-07536-6	US-08-441-147-6	US-08-462-484-6	US-09-028-934-36	US-08-973-273-3	US-08-973-273-26	US-08-460-269C-4	US-09-228-986-71	US-08-332-838-2	US-09-063-733A-56	US-09-523-656-38	US-08-991-953A-2	US-08-769-399-2
	Sequence 2, Appli	Sequence 2, Appli	Sequence 2, Appli	Sequence 49, Appl	Sequence 2, Appli		Sequence 6, Appli	Sequence 6, Appli	Sequence 36, Appl	Sequence 3, Appli	Sequence 26, Appl	Sequence 4, Appli	•	Sequence 2, Appli	Sequence 56, Appl	-		Sequence 2, Appli

TELEFAX: 713-70, 58: INFORMATION FOR SEQ ID NO: 58: SEQUENCE CHARACTERISTICS: FRIGTH: 617 amino acids Sequence 58, Application US/09063733A Patent No. 6372211 GENERAL INFORMATION: COUNTRY: USA ZIP: 77210-4433 ZIP: 77210-4433 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PAtentin Release #1.0, Version #1. CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/063,733A FILING DATE: 21-APR-1998 CLASSIFICATION: 435 CLASSIFICATION: 435 CLASSIFICATION: 435 APPLICANT: Isaac, Barbara G. APPLICANT: Greenplate, John T. APPLICANT: Purcell, John P. APPLICANT: Romano, Charles P. TITLE OF INVENTION: INSECTS INTELE OF INVENTION: INSECTS INTELE OF SEQUENCES: 58 CORRESPONDENCE ADDRESS: ATTORNEY AGENT INFORMATION: NAME: Patterson, Melinda L. REGISTRATION NUMBER: 33,062 REFERENCE/DOCKET NUMBER: MOBT:022 TELECOMMUNICATION INFORMATION: TELEPHONE: 713-787-1400 TELEPHONE: 713-70. TELEPHONE: 713-787-1440 TO NO: TYPE: amino acid STRANDEDNESS: no PO Box 4433 linear Arnold White & not relevant 2.6%; Score 106; DB 4; Length 617; 22.8%; Pred. No. 0.071; tive 40; Mismatches 141; Indels

86;

Gaps

PLRRHHSDLYSHY 432	Oy 386 PYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGL	0
SDESLQHVALNFILAGRDT 311	Db 252 DQYLAAVIKKRKLELAAGNGKCDTAATHDDLLSREMRKGSYSDESLQ	D
GVDC 385	Qy 354 GGNSPAAMTTRYVDGGFGMGKYTTPLTR	Ö
RLVYEISLQEALAIY 353 METTLTSSMAHV 251		<u>u</u> .c
20	248 OGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVP	0 0
LHHVGLELLVNHKALDPARWTIQKVFY 247	Qy 207	ס ס
YKHRGRNLVTMTTAÞRGLQSGDRAT 206 	Qy 151 PVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRAT	0 0
Length 541; Indels 183; Gaps 22;	Query Match 2.6%; Score 102.5; DB 4; Lei Best Local Similarity 19.6%; Pred. No. 0.13; Matches 109; Conservative 60; Mismatches 205; In	
	RMATION: A.	g
	9355	
	OF SEQ ID NOS: 20 E: FastSEQ for Windo	
TING TRANSFORMED YEAST	NT: Schalk, Michel NT: Schalk, Michel NT: Werck-Reichhart, Daniele F INVENTION: RECODING OF DNA SEQUENCES PERMITTI F INVENTION: EXPRESSION IN YEAST AND OBTAINED TO THE PREPARTY AND OBTAINED TO THE PREPARTY AND STAINED TO T	
	PACENT NO. 6180363 ; PACENT NO. 6180363 ; APPLICANT: BACATION: ; APPLICANT: Durst, Francis	
	RESULT 2 US-09-158-767-19 : Sequence 19, Application US/09158767A	<u>C</u> Z
s 309	Db 274TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS	₽
s 357	GPRIFDVRFQGERLVYEISLQEALAIYGGNS	õ
	228 E	멅
PRFSVQGSRVASSLW 316	ž	õ
HKALDPARWTIQKVFYQGRYYDSLA 256 	Qy 205 ATWFGLYYNISGAGFFLHVGLELLVN	B 8
KYYLDGEN 17	26 LYTHHFTDAKHDYYDIGAMRYPDIPSMKRTFNLFKRTGMPLI-	Ď
VTMTTAPRGLQSGDR 204	Qy 145 LPYHRRPVLFQEYLDIDOMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR	Ö
	74 XXXXXGGGPPRKVCIVGAGVSGLYIAMILDD	₽ 5
-PLPHPSYMRDVTVERHGGP 144	Oy 91 LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSY	ō

```
; NUMBER OF SEQ ID NOS: 20
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 20
; LENGTH: 541
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Altered sequences
US-09-158-767-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                           οy
                                                                                                 DЪ
                                                                                                                                        Qy
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 3
US-09-158-767-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 20, Application US/09158767A Patent No. 6180363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.6%; Score 102.5; DB 4; Length 541; Best Local Similarity 19.6%; Pred. No. 0.13; Matches 109; Conservative 60; Mismatches 205; Indels 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/158,767A CURRENT FILING DATE: 1998-09-23 EARLIER APPLICATION NUMBER: FR 97-12094 EARLIER FILING DATE: 1997-09-24 NUMBER OF SEO ID NOS: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Batard, Yannick
APPLICANT: Durst, Francis
APPLICANT: Schalk, Michel
APPLICANT: Werck-Reichhart, Daniele
APPLICANT: Werck-Reichhart, Daniele
TITLE OF INVENTION: RECODING OF DNA SEQUENCES PERMITTING
TITLE OF INVENTION: EXPRESSION IN YEAST AND OBTAINED TRAN
FILE REFERENCE: A32000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              433 FGGLAETVLVVRSM----STLLNYDYVWDTVFHPSG-AIEIRFYATGYISSAFLFGATGK 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            312 SSVA--LSWFFWLVSTHPAVERKIVRELCSVLAASRGAHDPALWLAEPFTFEELDRLVYL 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         151 PVLFQEYLDIDQMIFNRELPQASGLLHHCCF----YKHRGRNLVTMTTAPRGLQSGDRAT 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   482 -- RLTVAPGHRVEQKMS 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              608 WERYQLAVTORKEEEPS 624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               440 TKFEQHDSYKFVAFNAGPRVCL------GKDLAY-LQMKNIAGSVLLRH------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             548 KLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFS 607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               488 YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTR 547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                370 KAALSETLRLYPSVPEDSKHVVADDYLPDGTFVPAGSSVTYSIYSAGRMKG------ 420
312 SSVA--LSWFFWLVSTHPAVERKIVRELCSVLAASRGAHDPALWLAEPFTFEELDRLVYL 369
                                                386 PYLATYVDWHFLLESQAP----KTIRDAFCVFEQNQGL-----PLRRHHSDLYSHY 432
                                                                                                                                                  354
                                                                                                                                                                                                   210
                                                                                                                                                                                                                                                    305
                                                                                                                                                                                                                                                                                                  156 HGRLLPILADAAKGKAQVDLQDLLLRLTFDNICGLAFG-----KDPETLAQGLPENEFA 209
                                                                                                                                                                                                                                                                                                                                             248 QGRYYDSLAQL---EAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRF 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                    207
                                                                                                 252 DOYLAAVIKKRKLELAAGNGKCDTAATHDDLLSRFMRKGSYSDESLOHVALNFILAGRDT 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                40 PGLVQHAEDMHEWIAG-NLRRAGGTYQTCIFAVPGVARRG-GLVTVTCDPRNLEHVLKAR 97
                                                                                                                                                                                                                                                                                                                                                                                                                                  ------WFGLYYNISGAGFF------LHYGLELLVNHKALDPARWTIQKVFY 247
                                                                                                                                                  GGNSPAAMTTRYVDGGFGMGKYTTPLTR-------
                                                                                                                                                                                                   SVQGSRVASSLWTFSF------GLGAFSGPRIFDVRFQGERLVYEISLQEALAIY 353
                                                                                                                                                                                                                                                                                                                                                                                                 FDNYPKGPFWHGVFRDLLGDGIFNSDGDTWLAQRKTAALEFTTRTLRTAMSRWVSRSI-- 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ------VWGED-----CLEFRPE---RWLSADG 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSFORMED YEAST
                                                                                                                                                    ----- GVDC 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 4
US-09-063-733A-46
 В
                              δÃ
                                                                   В
                                                                                                 õ
                                                                                                                                                                                                         US-09-063-733A-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patent No.
                                                                                                                                     Matches
                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: Patentin Release #1.0, V. CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/063,733A
FILING DATE: 21-APR-1998
CLASSIFICATION: 435
ATTORNEY ACCURATE: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Purcell, John F. APPLICANT: Romano, Charles P. TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR CONTROLLING TYPE OF INVENTION: INSECTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 617 amino acids
                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: PATCETSON, Melinda L.
REGISTRATION NUMBER: 33,062
REFERENCE/DOCKET NUMBER: MO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION:
TELEPHONE: 713-787-1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          433 FGGLAETVLVVRSM----STLLNYDYVWDTVFHPSG-AIEIRFYATGYISSAFLFGATGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                482 -- RLTVAPGHRVEQKMS 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    608 WERYQLAVTORKEEEPS 624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    440 TKFEQHDSYKFVAFNAGPRVCL------GKDLAY-LQMKNIAGSVLLRH-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    548 KLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          370 KAALSETLRLYPSVPEDSKHVVADDYLPDGTFVPAGSSVTYSIYSAGRMKG------
                                                                                                                                                                                                                                                                                                          TELEPHONE: /13-787-1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
 72
                                91 LAHLDRGSP--PPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHG 142
                                                                   18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                         TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                              LSREELTAVMRFLTQRLG--PGLVDAAQAR------PSDNCVFSVELQLPPKAAA 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTR 547
LKEAPRAEEELPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTG
                                                                LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI-----KPAL 71
                                                                                                                                       81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Houston
S: TX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6, Application US/09063733A 6372211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77210-4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PO Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Greenplate,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Isaac, Barbara G. Greenplate, John T. Purcell, John P.
                                                                                                                                     Conservative
                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arnold White & Durkee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Floppy disk
                                                                                                                                                                                                                                         not relevant
                                                                                                                                                     2.5%;
                                                                                                                                                                                                                                                                                                            46:
                                                                                                                                     39;
                                                                                                                                   Score 101; DB
Pred. No. 0.24;
39; Mismatches
                                                                                                                                                                                                                                                                                                                                                                              MOBT: 022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---VWGED-----CLEFRPE---RWLSADG:439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Version #1
                                                                                                                                                     DB 4;
).24;
                                                                                                                                   138; Indels
                                                                                                                                                                   Length 617;
                                                                                                                                     90;
                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
 123
                                                                                                                                     19;
```

g g

359 RPQPEVTWRINGIPVEELAKDQKYRIQR----GALILSNVQPSDTMVTQCEARNRHGLLLA 415

-----LQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRD 135

43 -----DLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVE---

81

Ş

82

```
맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 5
US-08-506-296B-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
В
                                 9
                                                                                                                                         US-08-506-296B-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent No. 6313265
GENERAL INFORMATION:
                                                                     Matches 160;
                                                                                                      Query Match
                                                                                                                                                                                                                                           TELEFAX: (619) 554-63
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PATENTIN REL
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Cunningham, Bruce A.
APPLICANT: Crossin, Kathryn L.
TITLE OF INVENTION: NEURITE OUTGROWTH-PROMOTING POLYPEPTIDES
TITLE OF INVENTION: CONTAINING FIBRONECTIN TYPE III REPEATS AND METHODS OF
NUMBER OF SEQUENCES: 77
                                                                                                                                                        MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION: NAME: Fitting, Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    174 ENTP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124 GRLYTHHFTDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          143 GPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       203 DRATWFGLYYNISGAGFFLHHVGLELLVN------HKALDPARWTIQKVFYQGRYYDS
299 LLKVGEEDDGEYRCLAENSLGSARHAYYVTVEAAPYWLHKPQSHLYGPGETARLDCQVQG 358
                                                                                                                                                                                             LENGTH:
TYPE: a
                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 10550
CITY: La Jolla
STATE: Califor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: C
                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                 TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                  4 VLLVGRGGDG-----GEPSQLPHCPSVSPSAQP-WTHPGQSQLFA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LAE---DEDKGEDELMLYDDMTT--REYLKRGGPKGEAPKYDF----FAIQWMETQN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14, Application US/08506296B
5, 6313265
                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E: The Scripps Research Institute
10550 No. 6313265th Torrey Pines Road,
                                                                                                                                                                                                             1253 amino acids
                                                                                                                                                                                                                                                                 (619) 554-6312
                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Phillips,
                                                                                                                                                                                                                                                                                   (619)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                       24-JUL-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Floppy disk
                                                                                                                                                        protein
                                                                                    2.5%;
                                                                                                                                                                                                                                                                                   554-2937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Greg
                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/506,296B
                                                                                                                                                                                                                                                                                                                                     34,163
                                                                     ; 68
                                                                                                                                                                                                                                                                                                                      TSRI
                                                                                    Score 100.5; DI
                                                                     Mismatches
                                                                                                      DB 4;
                                                                     269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TPC-8
                                                                       Indels 349;
                                                                                                      Length 1253;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             357
                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             202
                                    42
                                                                       40;
```

ŭ

В

416

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-314-242-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
    Query Match
                                                                                                                                SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2, Application US/09314242A Patent No. 6248575
                                                                                                                                                                     EARLIER APPLICATION NUMBER: 09/080,428 EARLIER FILING DATE: 1998-05-18 NUMBER OF SEQ ID NOS: 12
                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/314,242A CURRENT FILING DATE: 1999-05-18
                                                                                                                                                                                                                                                                                         APPLICANT: Elizabeth J. Golightly
TITLE OF INVENTION: Nucleic Acids Encoding Polypeptides
TITLE OF INVENTION: Having L-Amino Acid Oxidase Activity
                                                                                      LENGTH: 61
TYPE: PRT
                                                                                                                                                    SOFTWARE: FastSEQ for
                                                                                                                                                                                                                                                                                FILE REFERENCE: 5556.200-US
                                                                ORGANISM: Trichoderma harzianum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    920 HPEALHLECOSNTSLLLRWOPPLSHNG 946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            714 ACEVNPLACLPQAAACAPDLPAFSHGG 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      868 KDHVVVPANTTSV---ILSGLRPYSSYHLEVQAFNG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           666 IPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     813 QAIPELEGIEILNSSAVLVK--WRP-VDLAQVKGH--LRGYNVTYWREGSQRKHSKRHIH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               613 LAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAG-----FLH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               557 A---FLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGE-PLPQNSSMARGFSWERYQ 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       717 NPVDVKG-----EGNETTNMVITWKPLRWMDWNAPQVQYRVQWRPQGTRG--PWQEQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 509 VDLDVAGLENWVWAEDMVFVPMAVPWSP-----EHQLQ-RLQVTRKLLEMEEQA 556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 469 RFYATG-----YISSAFLEGATGKYG----NQVSEHTLGTVHT-HSAHFK 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    364 RYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQA------PKTIRDAFCV 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          193 TTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYY 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              768 VSDPFLVVSNTSTFV------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               626 LTQSQVRVSWSPAEDHNAPIEK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     413 FEQNQ----GLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEI 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               582 DYSD----OGNYSCVASTELD------VVESRAQLLVVGSPGPVPRLVLSDLHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      311 VASSLWTFSFGLGAFSGPRIFD-----VRFQGE-RLVYEISLQEALAIYGGNSPAAMTT 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          253 DSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQ--GSR 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KWYSLGKVPGNQTSTTLKLSPYVHYTFRVTAINKYGPGEPSPVSE----TVVTPEAAPEK 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TLGIRDLQANDTGRYFCLAANDQN-----NVTIMANLKVKDATQIT-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VTVERHGGPLPYHRRPVLFQEYLDIDQMIF----NRELPQASGLLHHCCFYKHRGRNLVTM 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAYIYVVQLPAKILTADNQTYMAVQGSTAYLLCKAFG-APVPSV---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---TFTCQASFDPSLQPSITWRGDGRDLQELGDSDKYFIEDGRL-VIHSL 581
                                                                                                                                                    Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----QWLDEDGTTVLQDERFFPYANG---
  2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----PYEIKVQAVNSQGKGPEPQ---VTIGYSGEDYP
  Score 100;
  DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------QGPRSTIEKKGSR 534
  4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----YDIEFEDKEMAPE 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RGSGPASEFTFSTPEGVPG
Length 617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          458
```

```
RESULT 7
US-09-063-733A-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 57, Application US/09063733A Patent No. 6372211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 23.9
Matches 83; Conservative
      Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                     INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 617 amino acids
                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: MCTELECOMMUNICATION INFORMATION: 713-787-1400
                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: Arnold White
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: (C)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      124 GRLYTHHETDAKHDYYDIGAMRY-PDIPSMK------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       255 LAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASS 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    203 DRATWFGLYYNISGAGFFLHHVGLELLVN-----HKALDPARWTIQKVFYQGRYYDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    143 GPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ITLE OF INVENTION:
                                                                                                                                                                                                                               NAME: Patterson, Melinda L. REGISTRATION NUMBER: 33,062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18
                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                  CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: USA
ZIP: 77210-4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44 LSREELTAVMRFLTQRLG--PGLVDAAQAR-----PSDNCVFSVELQLPPKAAA
                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 21-AP
                                                                                                                                                                                                                                                                                                                                                                    OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LAE----DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF-----FAIQWMETQN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DGENTPQLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEK 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LKEAPRAEEELPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LAHLDRGSP--PPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHG 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI-----KPAL
                                                                                                  amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PO Box 4433
                                                                                                                                                                    713-787-1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Purcell, John P. Romano, Charles P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Greenplate, John T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Isaac, Barbara G.
                                                                     linear
                                                                                                                                                                                                                                                                                                21-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS
                                                                                    not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23.9%;
     2.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                METHODS AND COMPOSITIONS INSECTS
                                                                                                                                                                                                                                                                                                                                                                    PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                 US/09/063,733A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٤'n
     Score 95;
Pred. No.
                                                                                                                                                                                                                   MOBT: 022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Durkee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
DB
1;
                    4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FOR CONTROLLING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -RTFNLFKRTKMPLIKYYL 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  90
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 8
US-09-136-574A-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 44, Applicati Patent No. 6294366 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                   INFORMATION FOR SEQ ID NO: 44: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44
                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/136,574A
FILING DATE: 19-Aug-1998
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: BAK, MATY E.
REGISTRATION NUMBER: 31,215
REFERENCE/DOCKET NUMBER: 199
TELECOMMUNICATION INFORMATION:
TELEPHONE: 215-540-9200
                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Diske
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: 49
CORRESPONDENCE ADDRESS:
ADDRESSEE: Howson and Howson
STREET: Spring House Corporate Center, P.O. Box 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLW 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LYTHHETDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        XXXXXGGGPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTGGR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI----GGGSGG 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LSREELTAVMRFLTQRLG--PGLVDAAQAR-----PSDNCVFSVELQLPPKAAA 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEKLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHGGP 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E---DEDKGEDELMLVDDMTT--REYLKRGGPKGEAPKYDF----FAIQWMETQN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATWEGLYYNISGAGEFLHHVGLELLVN------HKALDPARWTIQKVFYQGRYYDSLA 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      78;
                                                                                                                                                                                                              APPLICATION NUMBER: US 08/932,571 FILING DATE: September 19, 1997
                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM Compatible OPERATING SYSTEM: DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: Spring House
                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 STATE: PA
                                                                                      TELEFAX: 215-540-5818
                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 19477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/09136574A
                    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Beryy....
Daniels, Roy
Daniels, Roy
Morgan, Hugh W.
Williams, Diane P.
INVENTION: Compositions and Methods for
Treating Cellulose Containing Fabrics Using Truncated
Cellulase Enzyme Compositions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Farrington,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Anderson, Paige
Gibbs, Moreland
                                                                    <Unknown>
                    1751 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                           Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Graham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ~
                                                                                                                                          1997US001/CIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      142; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: Protein
; SEQUENCE DESCRIPTION: SEQ ID
US-09-136-574A-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                          US-08-471-119A-2
                                                                                                                                                            RESULT 9
                                                                                  Sequence 2, Application US/08471119A Patent No. 5827706 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local :
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
TITLE OF IN
                                                                                                                                                                                                                1161 TGYIENEKVTG 1171
                                                                                                                                                                                                                                                   642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        355 GNSPAAMTTRYVDGGEGMGKYTTPLTRGVDCPYLATYVDWHF-----LLESQAPKTIR-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                321 GLGAFS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 823 WGQEPGGATPAPTSTATPTPTPTATPTPTPTPTPTPTVSATPTPAPTASPVGGSYWTPSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       724 GDKPQSA-----VCDWAQIGASNVTFNFVK--LSSG------VSGADYYL-EVGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             664 TPTPTPTGSPGTGSGVKVLYKNNETSASTGSIRPWFKIVNGGSSSVDLSRVKIRYWYTVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                127 LPHPS-----YMRDVTVERHGGPLPYHRRPVLFQEYLDIDQM-----IFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    622 --- AYDNNULVWGLE---- PGAATSTPAPTSTPTPT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      578 GGEVEHKKQAQFKISV-PQGYPWDPTNDPSYKGLTSQLEKNKYIA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10 GGDGGEPSQLPHCPSVSPSAQPW---THPGQSQLFADLSREELTAVMRFLTQRLGPGLVD 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67 AAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGP 126
                                                                                                                                                                                                                                                 SDFINNETIAG
                                                                                                                                                                                                                                                                                      YYVEIGFKSGAG----
                                                                                                                                                                                                                                                                                                                                                                                                                              NAQIKVWYANGNLGS-----MTNVLNPKIKIENVGTT-----AVDLSRVKVRYWYTID
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AIEIR-FYATGYISSAFLEGATGKYGNOVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIQKGSGSYNQSNDYSVRSANSYIENEKVTGYIDDVL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SINPAYIDVKFVKLGANAG------GAD----YYVEIGFKSGAGVLAAGQSTKEIRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SYGALKVWYANGNLSSPTNVLNPKIKIENVGTTAVDLSRVKVRYWYTIDGEATQSVSVAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----PDNGTGGSWSLKSPVP-----PGPAP-PLQFYPQGPRFSVQGSRVASSLWTFSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSGAGQ--LQPGKDTGDIQVRFNKNDWSNYNQADDWSWLQSMTNYGENAKVTLYVDGVLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ELLVNHKALDPARWT--IQKVFYQGRY----YDSLAQLEAQFEAG-----LVNVVLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGL
                                                                                                                                                                                                                                                                                                                     RGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDF
                                                                                                                                                                                                                                                                                                                                                                                         DMVFVPMAVPWSPEHOLORLOVTRKLLEMEEQAAFLVGSATPRYL--YLASNHSNKWGHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---DAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSG
 INVENTION:
            Schneider, Elisabeth
Schoergendorfer, Kurt
Weber, Gerhard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                      Leitner, Ernst
                                                                                                                                                                                                                                                   652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.48;
 Cyclosporin
                                                                                                                                                                                                                                                                                      -VLAAGQSTKEIRLSIQK---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 94.5;
Pred. No. 6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ------GPRIFDVRFQGERLVYEI--SLQEALAIYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NO:
   Synthetase
                                                                                                                                                                                                                                                                                                                                                          TQSVSVTSSINPAYIDVKFVKLGANAGGAD 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              284;
                                                                                                                                                                                                                                                                                      --GSGSYNQSNDYS-VRSA 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---PTPTPTVTATPT-P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      - VWGR - - EPGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              225;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1034
                                                                                                                                                                                                                                                                                                                         641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          621
                                                                                                                                                                                                                                                                                                                                                                                               581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              226
```

```
Ş
                                                                             밁
                                                                                                                                                    B
     밁
                                                                                                                S
                                                                                                                                                                                       Š
                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ġ
                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
US-08-471-119A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12682 NPDALAVTDTSTKLTYAELDQQSDHVAAWLSKQKLPAESIVVVLAPRSSETIVACIGI-- 12739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 201 503 8807 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                               12983
                                                                                                                                             12923 VLSSLESLYIGGDRLDGADATKVKDLVKGKAYNAYGPTENSVMSTIYTIEHETFANGVPI 12982
                                                                                                                                                                                                                                                                                                                                                                                                                                             12740 --LKANLAYLPMDSNVPEARRQAIL----SEIPGEKFVLLGA-------GVP 12778
   13017 LARGYTDPSLNTGRFIHITIDGKQVQAYR--
                                                                                                                                                                                                                    12870 IFTTLLNGGTLFCISYFTYLDSKA-LSAAFSDHRINITLLPPA-----LLKQCLADAPS 12922
                                                                                                                                                                                                                                                                                                     12810
                                                                                                                                                                                                                                                                                                                                                                         12779 IPDNKT-----ADV-RMVFISD------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE:
HYPOTHETICAL: N
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: 10
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201 503 8474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/08/471,119A
FILING DATE: 06-JUN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Kassenoff, Melvyn
REGISTRATION NUMBER: 26,389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                        145 LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 8
                                                                                                                                                                                                                                                         242 IQKVFYQG-----RYY---DSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGP- 291
                                                                                                                                                                                                                                                                                                                                205 ATWFGLYYNI--SGA-----GFFLHHVGLELL-------VNHKALDPARWT 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: 10-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26 SPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL-GPGLVDAAQARPSDNCVFSVELQL 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  85 PPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGP 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: 59 Route 1
CITY: East Hanover
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DDRESSEE:
                                LTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAE 438
                                                                                                            GAFSGPR----IFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTP 378
                                                                                                                                                                                                                                                                                            PSASSLAYVIFTSGSTGRPKGVMVEHRGVISLVKQNASRIPQSLRMAHVSNLAFDASVWE 12869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New Jersey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             59 Route 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15281 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tolypocladium niveum 
rcc 34921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No. 5827706artis Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 503 880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          single
                                                                                                                                                                                 --APPLQFYPQGPRFSVQG---SRVASSLW-----TFSFG--L 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100-8029/CONT/CONT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 94.5; DB 2;
Pred. No. 2.9e+02;
0; Mismatches 307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Version
-TGDRVRYRPRDYQIEFFGRLDQ 13067
                                                                                                                                                                                                                                                                                                                                                                       -----IVASKTDKSYSPGTR 12809
                                                                         -PAGVMGELVVAGDG----- 13016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 15281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels 279;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41;
```

```
δÃ
 뭐
                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                        PCT-US94-03437-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 10
PCT-US94-03437-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                   Matches
                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 8, Application GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                   HYPOLINGS: NO
ANTI-SENSE: NO
ORIGINAL SOURCE:
ORGANISM: Leuconostoc dextranicum
ORGANISM: ATCC 19255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13375 SSYRYAAVIH 13384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13217 G--LEPSRSVT---AW-----VNKAIETFPSLAGSARVHVGTAEDISSIDGLRSDLVVI 13265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13068 QIKIRGHR----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13114 QAAQSVDKEEASNKVQEWEAHFDSTAYANIGGIDRDALGQDFLSWTSMYDGSLIPR---- 13169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13266 NSVAQYFPSREYLAELTANLIRLPGVKRI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PC
                                                                                                                                                                                                                                                                                                MOLECULE N
HYPOTHETICAL: N
                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 485 amino acids
                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        493
                              438 ETVLVVRSMSTL------LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              734 PAFSHGGFSH 743
                                                                                                        387 YLATYVDWHF------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 437
84 HDVTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG- 140
                                                                           30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIA- 651
                                                                       YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -- EEMQEWLNDTMRSLLDNQPPGKVLEIGTGTGMVLF--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----SEHTLGTVHTHSAHFK------VDLDVAGLE--NWVWAEDMVFVPMAVPW 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYGNQV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HTLGSNASKAMVRQQVAKLEDDEEELLVDPAFFTSLSDQFPDEIKHVEILPKRMAATNEL 13374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SPEHQLQRLQVT-RKLLEMEEQAAFL-VGSATPRYLYLASNHSNKWGHPRGYRIQMLSFA 592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----GKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFF--LRPY----NF-----
                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                         amino acid
                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PatentIn Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----FDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACAPDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Floppy disk
                                                                                                                                                                                                                                                                                                                                     protein
                                                                                                                                                                                                                                                                                                                                                                        single
                                                                                                                                                                  2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HOMOGENEOUS IMMUNOASSAYS USING MUTANT GLUCOSE-6-PHOSPHATE DEHYDROGENASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PC/TUS9403437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----IEPA-EVEQALLSDSSINDAVVVSAQNKEGLEMVGYITT 13113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PCT/US94/03437
                                                                                                                                                 61;
                                                                                                                                               Score 93.5; DE Pred. No. 0.95; 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Version #1.25 (EPO)
                                                                                                                                                                                  DB 5;
                                                                                                                                                 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         --FFGDMRTYATNKDFLVARAV 13314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----NLGKVEG----LQSYA 13216
                                                                                                                                                                                    Length 485;
                                                                                                                                                 Indels
                                                                       -- QAEAFIAHFSYRA 83
                                                                                                                                               97;
                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             691
                                                                                                                                               20;
```

```
QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
US-07-737-071A-2
            Ş
                                                                                                     US-07-737-071A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2, Application US/07737071A Patent No. 5229286 GENERAL INFORMATION:
                                                         Query Match
Best Local :
                                           Matches
                                                                                                                                                                                                                                                                                                         TELEFAX: (202) 887-03
TELEX: 440142
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  533
                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
                                                                                                                   MOLECULE TYPE:
                                                                                                                                                                                                                                     TELEPHONE: (202) 659-2930
                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        488 YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  306
387 YLATYVDWHF------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 1/2/ D.C. CITY: Washington D.C. CONNTRY: United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                    TELEPHONE:
                                                                                                                                                                                                                                                                                   REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Armstrong, Nikaido, Marmelstein Kubovcik
                                                                                                                                                             ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PWSPEHOLORLOVT-RKILEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YNRLMIEKPFGTSYATAEELQSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TFNFGSEQEAQESVLSIII --- DPKGAIEL 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PYNFFDEDPSFYSADSIYFRGDQDAGACEV 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VPADSKNNTFIAGELQFDLPRW-------EGVPFYVRSGKRLAAKQTRVDIVFKAG 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----NNETIAGK---DLVAWVTAGFLHIPHAEDIPNTVTVGN------GVGFFLR 687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGEPLPQ -- NSSMARGF SWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI -- --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT------MQIVGW
                                           81; Conserv
                                                                                                                                            AMINO ACID
                                                                                                                                                                                                                                                                                                 Murray,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E: Murray
1725 K Street, N.W., Suite
                                                                                                                                                                                                                         (202) 887-0357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JARSCH, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LANG, Gunter
                                           Conservative
                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Floppy disk
                                                                                                                                                                                                                                                                                        Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLUCOSE-6-PHOSPHATE DEHYDROGENASE FROM LEUCONOSTOC DEXTRANICUS
                                                       2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLONING AND OVEREXPRESSION OF
                                                                                                                                                                                                                                                                                22,890
                                                                                                                                                                                             2
                                           61;
                                                                                                                                                                                                                                                                      911028
                                                       Score 93.5; DB 1;
Pred. No. 0.96;
                                           Mismatches 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1000
                                                                        Length 486;
                                           Indels
                                           97;
                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             532
                                            20;
```

```
망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     So.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-022-096-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 2, Appli
Patent No. 530877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                         TELEFAX: (202)638-481 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: LANG, Gun
TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
                               SEQUENCE CHARACTERISTICS:
LENGTH: 486 amino acids
TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/022,096 FILING DATE: 19930225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES: 5
                                                                                                                             REGISTRATION NUMBER: 36,105
REFERENCE/DOCKET NUMBER: P5
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)638-5000
                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE: 30-JUL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION: NAME: Chin, Monica F.
                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: DE P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              142 YNRLMIEKPFGTSYATAEELQSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    592 AGEPLPQ--NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    488
MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           356 TENEGSEQEAQESVLSIII --- DPKGAIEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           688 PYNFFDEDPSFYSADSIYFRGDQDAGACEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 307 VPADSKNNTFIAGELQFDLPRW-------EGVPFYVRSGKRLAAKQTRVDIVFKAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                646 -----NNETIAGK---DLVAWVTAGFLHIPHAEDIPNTVTVGN------GVGFFLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202 AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT-------MQIVGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: U.S.A. ZIP: 20005-5701
                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET:
                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                    TOPOLOGY:
                                                                                                                           TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PWSPEHQLQRLQVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HDVTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA-----QAEAFIAHFSYRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ETVLVVRSMSTL-----LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/08022096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: Nikaido, Marmelstein, 655 Fifteenth Street N.W.
                                                                                                          .(202)638-4810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JARSCH, Michael
                      linear
                                                                                                                                                                                                    Monica F.
                                                                                                                                                                                                                                                                                              30-JUL-1990
 protein
                                                                                                                                                                                                                                         30-JUL-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gunter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLONING AND OVEREXPRESSION OF GLUCOSE-6-PHOSPHATE DEHYDROGENASE FROM LEUCONOSTOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEXTRANICUS
                                                                                                                                                                                                                                                        US 07/737,071
                                                                                                                                                                                                                                                                                                                                                                                    US/08/022,096
                                                                                           2
                                                                                                                                                                                                                                                                                                               40 24 158
                                                                                                                                                                    P564-3005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Murray
V. Suite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             382
                                                                                                                                                                                                                                                                                                                                                                                                                         Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      & Oram
330
                                                                                                                                                                                                                                                                                                                                                                                                                         #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             248
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-022-096-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patent No. 6033890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -08-445-463В-8
                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Barnett, Christopher C.
TITLE OF INVENTION: Homogenous Immunoassays Using Mutant
TITLE OF INVENTION: Glucose-6-Phosphate Dehydrogenases
NUMBER OF SEQUENCES: 124
CORRESPONDENCE ADDRESS:
             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/044,857
FILING DATE: 08-APR-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                           COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

COMPUTER: FORMS DOS

FORMANDE - PARTICLE PC-DOS/MS-DOS
                                                                                                                                            SOFTWARE: Patentin Rel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                         STREET: 1717 Deep
CITY: Deerfield
STATE: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                356 TFNFGSEQEAQESVLSIII---DPKGAIEL 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       688 PYNFFDEDPSFYSADSIYFRGDQDAGACEV 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          646 -----GVGFFLR 687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               249 LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     202 AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT------MQIVGW 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          533 PWSPEHQLQRLQVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                142 YNRLMIEKPFGTSYATAEELQSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               438 ETVLVVRSMSTL------LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       387 YLATYYDWHF------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 437
                                                                                                           APPLICATION NUMBER: FILING DATE: 22-MA
                                                                                         CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          85 HDVTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG- 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31 YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA-----QAEAFIAHFSYRA 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VPADSKNNTFIAGELQFDLPRW------EGVPFYVRSGKRLAAKQTRVDIVFKAG 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGEPLPQ--NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI---- 645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION:
                                                                                                                                                                                                                                                                 60015
Ruszala, Lois K.
                                                                                                                                                                                                                                                                                                                                    E: Dade Behring Inc.
1717 Deerfield Road
                                                                                                                                                                                                                                                                               USA
                                                                                                                                                              PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ullman, Edwin F. Caldwell, Robert M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Becker, Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Goodman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Silen, Joy L.
Levy, Mark J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bott, Richard R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Jakobovits, Edward B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                           22-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.3%; Score 93.5; DB 1; 20.8%; Pred. No. 0.96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Thomas C.
                                                                                                                             US/08/445,463B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61; Mismatches 151; Indels 97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                   US-08-445-464C-8
                                                                                                                                                                                                                                                                                                                                                                                     RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-445-463B-8
                                                                                                                                                                                                                                                                                                                             Sequence 8, Application US/08445464C Patent No. 6090567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (847) 267-537.
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                   APPLICANT: Barnett, TITLE OF INVENTION: TITLE OF INVENTION:
                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
                                                                      CORRESPONDENCE ADDRESS:
                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: (847) 267-5364
                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE: p:
HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             307 VPADSKNNTFIAGELQFDLPRW------EGVPFYVRSGKRLAAKQTRVDIVFKAG 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                646 -----NNETIAGK---DLVAWVTAGFLHIPHAEDIPNTVTVGN------GVGFFLR 687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             533 PWSPEHQLQRLQVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                142 YNRLMIEKPFGTSYATAEELOSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                387 YLATYVDWHF-------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 437
                                                                                                                                                                                                                                                                                                                                                                                                                                          356 TFNFGSEQEAQESVLSIII---DPKGAIEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             688 PYNFFDEDPSFYSADSIYFRGDQDAGACEV 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    249 LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        592 AGEPLPQ--NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI---- 645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202 AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT-------MQIVGW 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    488 YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV-----
 CITY: Deerfield
STATE: Illinois
                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85 HDYTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG- 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31 YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA-----QAEAFIAHFSYRA 84
                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 486 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 39,074
REFERENCE/DOCKET NUMBER: BEH-7261 DIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ETVLVVRSMSTL------LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 487
Illinois
                                E: Dade Behring Inc
1717 Deerfield Road
                                                                                                 Barnett, Christopher C.
VENTION: Homogenous Immunoassays Using Mutant
VENTION: Glucose-6-Phosphate Dehydrogenases
                                                                                                                                                                                                 Ullman,
                                                                                                                                                                              Caldwell,
                                                                                                                                                                                                                  Goodman, Thomas C.
Becker, Martin
                                                                                                                                                                                                                                                   Silen, Joy L.
Levy, Mark J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                           Bott, Richard R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                           Jakobovits, Edward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267-5376
                                                                                                                                                                                               Edwin F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.3%; Score 93.5; DE 20.8%; Pred. No. 0.96;
                                                                                        124
                                                                                                                                                                              Robert M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                          382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    532
```

20;

COUNTRY:

USA

COMPUTER READABLE FORM:

MEDIUM TYPE:

```
RESULT 15
US-08-044-857D-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-445-464C-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: RUSZAIA, LOIS K.
REGISTRATION NUMBER: 39,074
REFERENCE/DOCKET NUMBER: BEH-
TELECOMMUNICATION INFORMATION:
TELEPHONE: (847) 267-5364
TELEFAX: (847) 267-5376
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
                                                                                               Sequence 8, Application US/08044857D Patent No. 6455288
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/044,857
FILING DATE: 08-APR-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentTn Polocies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               387 YLATYVDWHF-----LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        488 YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV------ 532
                                                                                                                                                                                                                                          356 TENEGSEQEAQESVLSIII---DPKGAIEL 382
                                                                                                                                                                                                                                                                                                                      307 VPADSKNNTFIAGELQFDLPRW------EGVPFYVRSGKRLAAKQTRVDIVFKAG
                                                                                                                                                                                                                                                                                                                                                                                                     249 LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     533 PWSPEHQLQRLQVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/08/445,464C FILING DATE: 22-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENGTH:
                                                                            APPLICANT: Jakobovits,
                                                                                                                                                                                                                                                                               PYNFFDEDPSFYSADSIYFRGDQDAGACEV 717
                                                                                                                                                                                                                                                                                                                                                                                                                                           AGEPLPQ--NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI---- 645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HDVTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG- 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ETVLVVRSMSTL------LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA-----QAEAFIAHFSYRA 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AWNKDY-IKNVQVTLAEVLGVEERAGYY--DTTGALLDMIQNHT------MQIVGW 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YNRLMIEKPFGTSYATAEELQSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA 201
                                                                                                                                                                                                                                                                                                                                                              -----nnetiagk----gvgfflhiphaedipntvtvgn------gvgfflr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          486 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ĕ
                                   Silen, Joy L.
Levy, Mark J.
Becker, Martin
                    Goodman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.3%;
                    Thomas C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61;
                                                                              Edward B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BEH-7261 DIV 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 93.5; DB Pred. No. 0.96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels 97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20;
                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                            Š
                                                                                                                      В
                                                                                                                                                             δõ
                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                   142
                                         307
                                                                                                                      249
                                                                                                                                                                                                    202
                                                                                                                                                                                                                                                                                                                                                                  85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
  PYNFFDEDPSFYSADSIYFRGDQDAGACEV
```

ş

밁 Ş В Š 밁 Ş 밁 Q 밁

717

ş

₽

```
US-08-044-857D-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEQ ID NO: 8: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                   533 PWSPEHQLORLOVT-RKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSF 591
                                                                                                                                                                                                                                                                                                                                                                                                        438 ETVLVVRSMSTL------LNYDYVWDTVFHPSGAIEIRFYAT--GYISSAFLFGATGK 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  387 YLATYVDWHF------LLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLA 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                   31 YKKGYLQEHFAIVGTARQQLSDDEFKQLVRDSIKDFTEDQA-----QAEAFIAHFSYRA 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/044,857D
FILING DATE: 08-Apr-1993
CLASSIFICATION: <UNKDEN:
NAME: RUSZAIA, LOIS K.
NAME: RUSZAIA, LOIS K.
NAME: RUSZAIA, LOIS K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP: 60015
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGINAL SOURCE:
ORGANISM: Leuconostoc dextranicum
STRAIN: ATCC 19255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYPOTHETICAL: NO ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES: 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE DESCRIPTION: SEQ ID NO: 8:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear MOLECULE TYPE: protei
                                                                                                                                                                                                                                                                                                                                                              HDVTDAASYGILKSAIEEAATKFDIDGNRIFYMS--VAPRFFGTIAKYLKSEGLLAETG- 141
VPADSKNNTFIAGELQFDLPRW------EGVPFYVRSGKRLAAKQTRVDIVFKAG
                                   -----NNETIAGK---DLVAWVTAGFLHIPHAEDIPNTVTVGN------GVGFFLR 687
                                                                                         LAMEKPESFNDKDIRAAKNAAFN-ALKIYNEEEVNKYFVRAQYGA-GDTADYKPYLEEAD
                                                                                                                                 AGEPLPQ--NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI----
                                                                                                                                                                                YNRLMIEKPFGTSYATAEELQSDLENAFDDDQLFRIDHYLGKEMVQNIAALRFGNPIFDA 201
                                                                                                                                                                                                                                                                                                                 YGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVW-----AEDMVFVPMAV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.3%;
1 Similarity 20.8%;
81; Conservat;...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 1717 De CITY: Deerfield
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Ruszala, Lois K. REGISTRATION NUMBER: 39,074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: (847)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (847)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NDDRESSEE: Dade Behring Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 486 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Barnett, Christopher C. INVENTION: Homogeneous Immunoassays Using Mutant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Caldwell, Robert M. Bott, Richard R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Deerfield Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glucose-6-Phosphate Dehydrogenases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267-5376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267-5364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 93.5; DB 4; Pred. No. 0.96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BEH-7261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                        645
                                                                                                                                                                                     248
    355
                                                                                           306
                                                                                                                                                                                                                                                                                                                        532
```

Db 356 TENFGSEQEAQESVLSIII---DPKGAIEL 382
Search completed: May 20, 2003, 12:05:46
Job time: 32 secs

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                     4010
3967
2489.5
106
                                                                                                                                                                                                                                                                                                                                                                                   Score
                                                                                                                   95.5
95
93.5
93.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length: 0
                                                                                                                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-081-408-2_COPY_20_763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          375593 seqs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      May 20, 2003, 12:04:34 ; Search time 25 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Published_Applications_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LYCVLLYGRGGDGGEPSQLP.....QAAACAPDLPAFSHGGFSHN 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/USO9_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/USO9_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/USO9_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.nem.*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.nem.*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /cgn2_6/ptodata/1/pubpaa/US08_
/cgn2_6/ptodata/1/pubpaa/PCT_l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /cgn2_6/ptodata/1/pubpaa/US10_NEM_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US60_NEM_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                             2224
1194
617
                                                            944
581
617
878
601
635
904
994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99172665 residues
                                                                                                                                                                                                                                                                                                                                                                                     BG
                                                                                                                                                        00000000
                                                        US-10-115-563-14

US-10-005-530-4832

US-10-005-530-48

US-10-213-990-27

US-09-738-626-4914

US-10-005-530-54

US-09-912-020-564

US-09-912-020-364

US-09-912-301-844

US-09-912-33247

US-10-094-551-16
                                                                                                                                                                                                                                                               US-10-081-408-2
US-10-081-408-20
0 US-09-919-497-51
US-10-005-530-58
US-09-908-193-22
                                                                                                                                                                                                                                                                                                                                                                                   H
                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (without alignments)
2951.379 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PUBCOMB.pep:*
Sequence 2, Appli
Sequence 50, Appl
Sequence 51, Appl
Sequence 58, Appl
Sequence 14, Appl
Sequence 14, Appl
Sequence 46, Appl
Sequence 27, Appl
Sequence 37, Appl
Sequence 381, Appl
Sequence 384, Appl
Sequence 384, Appl
Sequence 247, Appl
Sequence 27, Appli
                                                                                                                                                                                                                                                                                                                                                                               Description
                                                                          밁
                                                                                                             Š
                                                                                                                                                    В
                                                                                                                                                                                 Ş
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                              20
                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 1
US-10-081-408-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:

APPLICANT: Abrahms,n, Lars
APPLICANT: Nilsson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001
CURRENT APPLICATION UNMBER: US/10/081,408
CURRENT FILING DATE: 2002-02-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 2, Application US/10081408 Patent No. US20020160482A1
```

ţ	4 4	ω.	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20
		0 00 0 00 1 UT			•							-		-	89	89	89			89.5	٠	•		90	
		2 2																	•	٠	•	•		•	
0	0 0	882	882	882	882	882	882	882	882	882	882	882	616	583	1430	365	365	3695	953	911	911	630	617	589	388
4	o c	φ	9	9	9	9	9	9	9	9	9	9	10	9				9	10	9	9	9	9	10	9
,	10-174-573-57	-10-180-	-10-180-552-57	-176-913-57		-10-176-482-5	-10-175-752-57	-10-175-738-5	US-10-173-706-574	-10-175-737-5	0-176-7		09-925-	9-942-18	7-99	25-299)9-925-29	US-10-037-182-2	-09-845-583	27-353-	US-09-855-754-4	US-10-101-464A-71	0-5	S-09-740-041	US-09-361-630-1
sequence 5/4, App		e 574,	equence	74, 1	-	e 574,	Ø	574,	Sequence 574, App	e 574,	Sequence 574, App	574,	Sequence 1519, Ap	Sequence 2, Appli	Sequence 34, Appl	Sequence 1007, Ap	Sequence 1007, Ap	Sequence 2, Appli	Sequence 4, Appli	Sequence 4, Appli	Sequence 4, Appli	71,	Sequence 56, Appl	Sequence 2, Appli	Sequence 1, Appli

ALIGNMENTS

```
PRIOR APPLICATION NUMBER: US 60/272,247
PRIOR FILING DATE: 2001-02-28
NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 2
LENGTH: 763
TYPE: PRT
ORGANISM: Homo sapiens
US-10-081-408-2
                                                                                                                                                                                                                                              Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 744; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: SE 0100625-3
PRIOR FILING DATE: 2001-02-23
                181 FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
200 FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
                                                            140 ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
                                                                                                                      ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                               Score 4010;
Pred. No. 0;
                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                               9;
                                                                                                                                                                                                                                                                               Length 763;
                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                Gaps
                              240
                                                             199
                                                                                          180
                                                                                                                         139
                                                                                                                                                       120
 259
                                                                                                                                                                                     79
                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                  0;
```

```
CURRENT APPLICATION NUMBER: US/10/081,408
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: SE 0100625-3
PRIOR TILING DATE: 2001-02-23
PRIOR APPLICATION NUMBER: US 60/272,247
PRIOR APPLICATION NUMBER: US 60/272,247
PRIOR FILING DATE: 2001-02-28
NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 20
LENGTH: 998
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 2
US-10-081-408-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
              Š
                                           밁
                                                                   Ş
                                                                                                                                                      US-10-081-408-20
                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 20, Application US/10081408 Patent No. US20020160482A1 GENERAL INFORMATION:
                                                                                                        Query Match
Best Local Similarity
                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Abrahms,n , Lars
APPLICANT: N11sson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001
                                                                                                                                                                   OTHER INFORMATION:
                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                           263
                                                                                      Local
735;
               69
                                                                      ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQ 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACLPQAAACAPDLPAFSHGGFSHN 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAA 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQ
QARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLP 128
                                                      RGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVWRFLTQRLGPGLVDAA 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAF
                                           QGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAA 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SMARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL
                                                                                                Conservative
                                                                                                                                                                   Recombinant construct
                                                                                                           98.9%;
99.9%;
                                                                                                          Score 3967;
Pred. No. 0;
                                                                                              Mismatches
                                                                                                                          DB
                                                                                                                        9;
                                                                                              0;
                                                                                                                          Length 998;
                                                                                              Indels
                                                                                              0
                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              499
                                                                                              0
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
         δÃ
                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                  οy
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                         ; ORGANISM: Homo US-09-919-497-51
                                                                                                                                                                                                                                                               RESULT 3
US-09-919-497-51
                                                                                                       SOFTWARE: Pat
SEQ ID NO 51
LENGTH: 729
                               Query Match
Best Local S
Matches 473
                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                         Sequence 51, Application U Patent No. US20020106662A1
                                                                                                                                     APPLICANT: Mutter, George L.

TITLE OF INVENTION: PROGNOSTIC CLASSIFICATION
FILE REFERENCE: B0801/7225

CURRENT APPLICATION NUMBER: US/09/919,497

CURRENT FILING DATE: 2001-07-31

PRIOR APPLICATION NUMBER: US 60/221,735

PRIOR FILING DATE: 2000-07-31

NUMBER OF SEO ID NOS: 100
                                                                                               TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    443
                                                                                                                                                                                                                                                                                                                                                                                               863
                                                                                                                                                                                                                                                                                                                                                                                                                    609
                                                                                                                                                                                                                                                                                                                                                                                                                                         803
                                                                                                                                                                                                                                                                                                                                                                                                                                                             549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           323
                                                                                                                                                                                                                                                                                                           983
                                                                                                                                                                                                                                                                                                                               729
                                                                                                                                                                                                                                                                                                                                                     923
                                                                                                                                                                                                                                                                                                                                                                         669
1 LVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQ 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN 188
                                                                                                                                                                                                                                                                                                          CAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                      CAPDLPAFSHGGFSHN 744
                                                                                                                                                                                                                                                                                                                                                                AEDIPNTYTYGNGYGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA
                                                                                                                                                                                                                                                                                                                                                                                             YSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HPSYMRDYTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLP
                                                                                                                                                                                                                                                                                                                                                     AEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAA
                               al Similarity
473; Conserv
                                                                                                                               PatentIn version
                                  Conservative
                                                                                   sapiens
                                           62.1%;
63.7%;
                                                                                                                                                                                                                                                                                                           998
                                                                                                                                                                                                                                                   US/09919497
                                86;
                                         Score 2489.5;
Pred. No. 4.2e-
                                  Mismatches 149;
                                                     DB 10;
                                                                                                                                                                                                          읁
                                  Indels
                                                     Length
                                  35;
                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                922
                                                                                                                                                                                                                                                                                                                                                                                                                    899
                                                                                                                                                                                                                                                                                                                                                                                                                                          862
                                                                                                                                                                                                                                                                                                                                                                                                                                                              608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                308
                                                                                                                                                                                                                                                                                                                                                      982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              742
```

4.

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÔ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                              RESULT 4
US-10-005-530-58
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                             Sequence 58, Application US/10005530 Publication No. US20030026795A1 GENERAL INFORMATION:
                                                                           APPLICANT: Greenplate, John T.
APPLICANT: Purcell, John T.
APPLICANT: Romano, Charles P.
APPLICANT: Romano, Charles P.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR CONTROLLING FILE REFERENCE: 11899.0022.DVUS01 (MOBT:022--2)
CURRENT EPLICATION NUMBER: US/10/005,530
CURRENT FILING DATE: 2001-10-26
PRIOR APPLICATION NUMBER: 09/063,733
PRIOR APPLICATION NUMBER: 09/063,733
PRIOR FILING DATE: 1998-04-21
PRIOR FILING DATE: 1998-04-21
PRIOR FILING DATE: 1998-04-21
                                                                                                                                                                                                                                                            APPLICANT: Isaac, Barbara G. APPLICANT: Greenplate, John
                                               SOFTWARE:
                                                              NUMBER OF SEQ ID NOS: 58
LENGTH: 617
TYPE: PRT
                               ID NO 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            647
                                                                                                                                                                                                                                                                                                                                                                                                                      707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAA
                                                                                                                                                                                                                                                                                                                                                                                                                                       PLACLPQAAACAPDLPAFSHGGF 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVN 718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GPGLVDAAQAQPSDNCIFSVELQLPPKAAALAHLDRGSPPPAREALAIVLFGGQPQPNVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WLQRPQLTRQVLGKEDLTAFSLGSPLPRYLYLASNQTNAWGHQRG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LKGGEEGLLFGNRVGERVLGTVHTHAFHFKLDLDVAGLKNWVVAEDVVFKPVAAPWNPEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LFGATG - - KYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LRRHHSDLYSHYEGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAF 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MLTRYLDSSFGLGRNSRGLVRGVDCPYQATMVDIHILVGKGAVQLLPGAVCVFEEAQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSQYSVQGNLVVSSLWSFTFGHGVFSGLRIFDVRFQGERIAYEVSVQECVSIYGADSPKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -FNYNGSTLAAVHATPRGLRSRERTTWIGLYHNISGVGLFLHPVGLELLLDHRALDPAHW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLRAEFTQMWRHLKDVELPKAPIFLSST-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LAYVLLTSPGGS----SQPPHCPSVSHRAQPWPHPGQSQLFADLSREELTAVMRFLTQRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----YQLVVTQRKEEESQSSSIYHQNDIWTPTVTFADFINNETLLGEDLVAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LRRHHNYLONHFYGGLASSALVVRSVSSVGNYDYIWDFVLYPNGALEGRVHATGYINTAF
                                                                                                                                                                                                                                                                                                                                                                                                                      PVACLPDLAACVPDLPPFSYHGF 729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VTASFLHIPHAEDIPNTVTLGNRVGFLLRPYNFFDEDPSIFSPGSVYFEKGQDAGLCSIN
                                                 PatentIn
                                                   version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      598
```

```
Š
                                                                       밁
                                                                                                       Š
                                                                                                                                              В
                                                                                                                                                                              Š
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-005-530-58
                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity Matches 79; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: Xaa - Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: MISC_FEATURE LOCATION: (74)..(79)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: Synthetic Polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Artificial Sequence
                                  317 TFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS 357
                                                                                                           257 QLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLW
                                                                                                                                              176 TP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEKLA
                                                                                                                                                                                                                                                      145 LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR
                                                                                                                                                                                                                                                                                              74
                                                                                                                                                                                                                                                                                                                               91 LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHGGP 144
                                                                                                                                                                                                                                                                                                                                                                   18 LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSIK----PGGGG
                                                                                                                                                                                                                                                                                                                                                                                                      44 LSREELTAVMRFLTQRLG--PGLVDAAQAR------PSDNCVFSVELQLPPKAAA 90
                                                                       E---DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF----FAIQWMETQN---
                                                                                                                                                                       ATWFGLYYNISGAGFFLHHVGLELLVN------HKALDPARWTIQKVFYQGRYYDSLA
                                                                                                                                                                                                                     LYTHHFTDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDGEN
                                                                                                                                                                                                                                                                                              XXXXXXGGGPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTGGR
                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                            40; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 106;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 617
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                       175
                                                                                                             316
                                                                                                                                                                                  256
                                                                                                                                                                                                                                                         204
                                                                                                                                                                                                                                                                                              125
                                                                                                                                                                                                                                                                                                                                                                       73
                                                                                                                                              227
                                                                          273
                                                                                                                                                                                                                                                                                                                                                                                                                                              18;
```

```
RESULT 5

US-09-908-193-22

; Sequence 22, Application US/09908193

Publication NO. US20020192748A1

GENERAL INFORMATION:
APPLICANT: SHIMKETS, RICHARD A.
APPLICANT: SHIMKETS, RICHARD A.
APPLICANT: HASTELLI, LUCA
APPLICANT: HASTELLI, LUCA
APPLICANT: HASTELLI, BYAN
APPLICANT: MALYANKAR, URIEL M.
APPLICANTION NUMBER: US/09/908,193

CURRENT FILING DATE: 2001-07-18

PRIOR APPLICATION NUMBER: 60/221,650

PRIOR APPLICATION NUMBER: 60/221,233

PRIOR APPLICATION NUMBER: 60/221,233

PRIOR APPLICATION NUMBER: 60/221,233

PRIOR APPLICATION NUMBER: 60/221,233

PRIOR APPLICATION NUMBER: 60/221,875

PRIOR APPLICATION NUMBER: 60/218,875

PRIOR APPLICATION NUMBER: 60
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                              RESULT 6
US-10-115-563-14
                                                                                                                                                                                                                                                                                                  Sequence 14, Application US/10115563
Publication No. US20030008307A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          503 PDFTTVKIVNYTVRFSPWGLRNASLVTYYTSSGEDILI-GGLKP---FTKYEFAVQSHGV 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        444 EVKLVAFNKHEDGYAAVWKGKTEKAPAPDMPIQRGPPLPPAHVHAESNSSTSIW-LRWKK 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    388 ISGYKLYWREVGAEEEANGDRLPGGRGDQAWDVGPV----RLKKKVKQYELTQLVPGRLY 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           214 ISGAGFFLHHVGLELLVNHKALDPAR----WTIQKVFYQGRYYDSLAQLE-AQFEAG-LV 267
                                                                                                                                                                                                                                                                                                                                                                                                                                            935 SASCSYPDL 943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     679 DSLDMHSV------TGIIVGVCLGLLCLLACMCAGLRRSPHRESLPGLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          559 DMDGPFGSVVERSTLPDRPSTPPSDLRLSPLTPSTVRLHWCPPTEPNGEIVEYLILYSSN 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     366 -VDGGFGM-----GKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQN 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             268 NVVLIP----DNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQG-SRVASSLWTFSFGL 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                   Greengard, Judith S
TITLE OF INVENTION: METHODS FOR DIAGNOSING ACTIVATED PROTEIN
C RESISTANCE ASSOCIATED WITH A FACTOR V C
AND COMPOSITIONS THEREOF
                                                                                                                                                            NUMBER OF SEQUENCES: 28
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAFSGPRI--FDVRF-----QGERLVYEISLQEALAIYGGNSPAAMTTRY------
      COMPUTER READABLE FORM
                                                                                                                                                                                                                                                                                 APPLICANT: Griffin, John H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACA---PDL 733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RLQVTRKLLEMEEQAAF--LVGSATPRYLYLASNHSNK---WGHPRGYRIQMLSFAGEPL 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGKYGNQV--SEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQ 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HTOPEHOWTLLTTOGNIFSAEVHGLESDTRYFFKMGARTEVGPGPFSRLQDVITLQEKLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QGLPLRR-----FGGLAETVLVVRSMS 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TVGNGVGFFLRPYNFFDEDPSFYSADSIYFRG----DQDAGACEV-----NPLACLPQAA 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDI-----PNTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DLISGVG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AC----RNQVEAEVIVHSDF--SASNGNPDL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATPGNPALYSRARLGPPSPPAAH-----ELESLVH-----PHPQDWSPPPS--
                                                     Patent Counsel
STREET: 10666 No. US20030008307Alth Torrey Pines Road, STATE: CA
                        COUNTRY: USA
ZIP: 92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -SWAGCELPQAGPRPALTRALLPPAGTGQTLLLQALVYDAIKGNGRKKSPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.6%; Score 104; DB 9; Length 980; 20.0%; Pred. No. 3.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DPG-----QGAAWLDRELGGCELAAPGPDRLTCLPEAA 934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----HLQDLEPEDPLPPEAP 894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                    TPC
                                                                                                                                                                                                                        GENETIC MUTATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; TOPOLOGY: Inear; ; MOLECULE TYPE: Protein; SEQUENCE DESCRIPTION: SEQ ID NO: 14: US-10-115-563-14
                                                                                                                                                                                                                      RESULT 7
US-09-738-626-5832
                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                          Sequence 5832, Application US/09738626 Publication No. US20020197605A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.6%; Score 103; D
Best Local Similarity 20.7%; Pred. No. 16;
                                                                                              APPLICANT: NAKAGAWA, SATOSHI
APPLICANT: MIZOGUCHI, HIROSI
APPLICANT: ANDO, SEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: 14:
                                                                                                                                                                                                                                                                                                                                                                                324
                                                                                                                                                                                                                                                                                                                                                                                                                                                            269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  150 RPVLFQEYLDIDQMIFNRELPQA--SGLLHHCCF-----YKHRGRNLVTMTTAPR 197
                                                                                                                                                                                                                                                                                                    382 NFSNQIG
                                                                                                                                                                                                                                                                                                                                           428 LYSHYFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       164 DPPCLTHIYY-----SHENLIEDFNSGLIGPLLICKKGTLTEGGTQKTFDKQIVLLFAV 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          245 -----VFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGT---GG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      198 GLQSGDRATWFGLYYNIS-GAGFFLHHVGLELLVNHKALDPAR-----WTIQK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62 KKIVYREY----EPYFKKEKPQSTISGLLGPTLYAEVGDIIKVHFKNKADK--PLSIHPQ 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/08/410,488 FILING DATE: 24-MAR-1995 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: 449.0 TELECOMMUNICATION INFORMATION: TELEPHONE: 619-554-2937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                IDIKNCPKKTRNLKKITREQRRHMKRWEYFI--AAEEVIWDYAPVIPANMDKKYRSQHLD
                                                                                                                                                                                                                                                                                                                                                                                                                       VD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                            IHFNGQVLEQNHKVSAITLVSATSTTANMTVGPEGKWIISSLTPKHLQAG-----MQAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VREQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTP-LTRGVDCPYLATY 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FDESKSWSQSSSL----MYTVNGYVNGTMPDITVCAHDHIS--WHL---LGMSSGPELFS 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----SWSLKSPVPPGPAPPLQFYPQG--PRFSVQGSRVASSLWTFSFGLGAFSGPRIFD 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GIR-----YSKLSEGASYLDHTFPAEKM--DDAVAPGREYTYEWSISEDSGPTHD 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/10/115,563
FILING DATE: 02-Apr-2002
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Fitting, Thomas REGISTRATION NUMBER: 34,163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 619-554-6312
                                                         HAYASHI, MIKIRO
OCHIAI, KEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 2224 amino acids
                    YOKOI, HARUHIKO
TATEISHI, NAOKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                      388
                                                                                                                                                                                                                                                                                                                                           434
                                                                                                                     HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            46; Mismatches 123;
                                                                                                                                                                                                                                                                                                                                                                                                                     ---WHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSD 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 2224;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels 122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                            323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        244
```

APPLICANT:

OZAKI, AKIO

```
PRIOR APPLICATION NUMBER: JP 99/377484

PRIOR FILING DATE: 1999-12-16

PRIOR FILING DATE: 1999-12-16

PRIOR FILING DATE: 2000-04-07

PRIOR APPLICATION NUMBER: JP 00/280988

PRIOR FILING DATE: 2000-08-03

PRIOR FILING DATE: 2000-08-03

PRIOR FILING DATE: 2000-09-03

SOFTWARE: Patentin ver: 3.0

SEQ ID NO 5832

LENGTH: 1194
                                                              RESULT 8
US-10-005-530-46
; Sequence 46, Application US/10005530
; Publication No. US20030026795A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; ORGANISM: Corynebacterium glutamicum 
US-09-738-626-5832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 18.9
Matches 112; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES FILE REFERENCE: 249-125
                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 11
TYPE: PRT
  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             252 YDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRV 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               195 APRGLOSGDRATWFGLYY---NISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRY 251
                                                                                                                                                                                                                                                                                                                                                                                                                      385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         311 MPIADVPEGYTPTTWL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  255 DEDRFK--FGGTGYYVKSAEQMRALWDDMVPDGCDNTLWIAERVQSYDEIWEE--HSHDR 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80
                                                                                                                                                                                                                                                                             NFFDEDPSFYSADSIYFRGDQDAGACEVNPLAC---LPQAAACAPDLPAFSHGG 740
                                                                                                                                                                                                                                                                                                                                                                                                                    GPGRGSAAGALVAYALTITNIDPMEHGLLFERF-------LNPERPSAPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSDLYSHYFGGLAETVLVVRSMSTL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALA---IYGGNSPAAMTTRYVDG 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LSSMASYEGQL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APESRFKKERVRWGEPHQKSDDVSGSGAYLHQT---MLAENTT-----GLRNLF----Y 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAP- 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ------PEDYIERAEYEISVIDMK------GYPSYFLIVAEIIKHARSIGIRV 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VFVPMAVPWSPEHOLORLOVTRKLLEMEEQAAFLVGSATPRYLYLAS---NHSN----KW 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GLDIETRVRSELLEIGRKLNLPPLVTN-DCHYVLESQA--QAHEAMLCVQTGKTL----H 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GFG----MGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRH 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADIIAEHAEGIIATTGCPSGDVQTRLRLGQFDEALEAAAMWQDIYGRDN---YFLELMDH 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IEIRFYATGYISSAFLFGATGKYGNOVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDM 525
                                                                                                                                                                                                                               -----QPGYQIADRV-----IKELPPAIMAKDIPLSGITDPDHPRFNEAG
                                                                                                                                                                                                                                                                                                                                                                      -TVDFSDFINNETIA-----GKDLVAWV-TAGFLHIPHAEDIPNTVTVGNGVGFFLRPY 689
                                                                                                                                                                                                                                                                                                                           IDIDFDDRRRGEMIRYAADRWGEDKIAQVITFGTVKTKQALKDSARVQMG-----
                                           Isaac, Barbara G.
Greenplate, John T. Purcell, John P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 71; Mismatches 207; Indels 204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 102; DB 9; Length 1194; Pred. No. 7.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ------HHEV---MAGLEDRFSGQQV 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------LNYDYVWDTVFHPSGA 465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----PRMD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                      427
```

```
; OTHER INFORMATION: Synthetic Polypeptide US-10-005-530-46
                                                                                   ; ORGANISM: Aspergillus US-10-213-990-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-213-990-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 81; Conserv
                                                                                                                                                                     TITLE OF INVENTION: NUCLEIC ACIDS OF ASPERGILLUS
TITLE OF INVENTION: ENZYMES AND METHODS OF USE
FILE REFERENCE: 10182-019-999
CURRENT APPLICATION NUMBER: US/10/213,990
CURRENT FILING DATE: 2002-08-05
NUMBER OF SEQ ID NOS: 72
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 58
SOFTWARE: PatentIn version 3.1
SEQ ID NO 46
LENGTH: 617
                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 27, Application US/10213990 Publication No. US20030082595A1 GENERAL INFORMATION:
Query Match
Best Local Similarity
Matches 122; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Romano, Charles P.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR CONTROLLING INSECTS FILE REFERENCE: 11899.0022. DVUS01 (MOBT:022--2)
CURRENT APPLICATION NUMBER: US/10/005,530
CURRENT FILING DATE: 2001-10-26
CURRENT FILING DATE: 2001-10-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 09/063,733
PRIOR TILING DATE: 1998-04-21
PRIOR APPLICATION NUMBER: 60/044,504
PRIOR FILING DATE: 1997-04-21
                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Storms, Reg
APPLICANT: Roemer, Terry
                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Jiang, Bo APPLICANT: Bussey, I
                                                                                                            LENGTH: 94
TYPE: PRT
ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18 LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI-----KPAL 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44 LSREELTAVMRFLTQRLG--PGLVDAAQAR------PSONCVFSVELQLPPKAAA 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91 LAHLDRGSP--PPAREALAIVFFGROPOPNVSELVVG-----PLPHPSYMRDVTVERHG 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DRATWFGLYYNISGAGFFLHHVGLELLVN------HKALDPARWTIQKVFYQGRYYDS 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GRLYTHHFTDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSG 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LAQLEAQFEAGLYNYVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENTP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEK 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LKEAPRAEEELPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTG 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LAE---DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF----FAIQWMETQN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS
                                                                                                                                                     944
                                                                                                                                                                                                                                                                                                                                                                                               Bussey, Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.5%;
                        2.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 101; DB Pred. No. 3.6;
                        Score 99;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches 138;
                        DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9;
                                               Length 944;
                                                                                                                                                                                                                                                                                                                                    FUMIGATUS ENCODING INDUSTRIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19;
```

Conservative

62;

Mismatches

Indels

176;

Gaps

```
RESULT 10
US-09-738-626-4914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 4914, Application US/09738626 Publication No. US20020197605A1 GENERAL INFORMATION:
                                                                                                                                             FILE REFERENCE: 249-125
CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
                               PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR FILING DATE: 2000-08-03
                                                                                                                                                                                   TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES FILE REFERENCE: 249-125
                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: NAKAGAWA, SATOSHI APPLICANT: MIZOGUCHI, HIROSH
                   PRIOR FILING DATE: 2000-08-03
                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      934 YQF 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       580 HPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTV 639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            526 VFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNH---SNKW---G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      675 LDWKYIDSLPEISTEYNDEGW-----TPLTN-----TY-----TNNTREFTGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               615 LHLTGDVNVTTPLEVISAPKRFDGIVFNGQSLKSTRSKIGNLAATVHYQPPAISLPDLKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           689 YNF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   713 TCLYADDYG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FANSVWLNQTFLGSWTGSGRNMTYPRNISLPHELSPGEPYVFTVVIDHMGQDEEAPGTDA 811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAH----FKVDLDVAGLENWVWAEDM 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -------MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDA 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFY---PQGPRFSVQGSRVASSLW-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RVLVLY--GGAG-ELHEFALPKHLPRPTVVEGSYV--KIAKQGSAWVVQWEVAAQRRVLR 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QYNLSISTSVGNVTIPQLGGSLSLNGRDSKFHITDYDVGGFNLIYSSAEVFTWAKGDNKK 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QEYLDIDQMIFNRELPQASGLL-----HHCCFYKHRGRNLVTMTTAPRGLQSGDRAT 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DFSDFINNETIAGKDLYAWYTAGFLHIPHAEDIPNTYTYGNGYG-----FFLRP 688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IKFP----YALSGHELSDLRWKMTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIR 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGKLEIHLLWRNDAYQHWVLELPA----KQPIANYSSPSKETVIVKGGYLLRSAWITDND 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQ---FE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----IKEGLTGAGIGFYATSFSLDLPEGYDIPLSFRFNNSASAARSGTSYRCQLFVNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----TFSFGLGAFSGPRIFD-VRFQGERLVYEISLQEALAIYGGNSPAA------
PatentIn ver.
                                                                                                                                                                                                                        IKEDA, MASATO
OZAKI, AKIO
                                                                                                                                                                                                                                                                                                                 HAYASHI, MIKIRO
OCHIAI, KEIKO
                                                                                                                                                                                                                                                                                YOKOI, HARUHIKO
TATEISHI, NAOKO
                                                                                                                                                                                                                                                              SENOH, AKIHIRO
                                                                                                                                                                                                                                                                                                                                                             ANDO, SEIKO
                                                                                                                                                                                                                                                                                                                                                                              HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---YHGG----SLIYRGHFT-ANGDESW-VFLNTSGG--VG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               316
```

```
PRIOR APPLICATION NUMBER: 09/063,733
PRIOR FILING DATE: 1998-04-21
PRIOR APPLICATION NUMBER: 60/044,504
PRIOR FILING DATE: 1997-04-21
NUMBER OF SEO ID NOS: 58
SOFTWARE: Patentin version 3.1
SEQ ID NO 57
LENGTH: 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TYPE: PRT
; ORGANISM: Corynebacterium glutamicum
US-09-738-626-4914
                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-005-530-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 57, Application US/10005530 Publication No. US20030026795A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 115; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 4914
LENGTH: 581
                                                                                                                                                                                                                                       APPLICANT: Purcell, John P.
APPLICANT: Romano, Charles P.
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR CONTROLLING INSECTS
FILE REFERENCE: 11899,0022.DVUSO1 (MOBT:022--2)
CURRENT APPLICATION NUMBER: US/10/005,530
CURRENT FILING DATE: 2001-10-26
                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Isaac, APPLICANT: Green
                                           TYPE: PRT
ORGANISM: Artificial Sequence
OTHER INFORMATION: Synthetic Polypeptide NAME/KEY: MISC_FEATURE
                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      676 VTVGNGVGFFLRPYNFFDED-PSF 698
: | :|: ||:|| |:|
539 LREGLSPNYFMAWKNFYDEDFPTF 562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241 TIQKVFYQGRYYDSLAQLEA-QFEAGLVNVV------LIPDNGT--GGSWSLKSPVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          556 AAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              164 TITKVIHDDGTEEGLAQLTALQFETKQVDTVEDLVRETASLTPEDQTLLAPAWGGVAPTP 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LTNRDQ----INTDHLELAVVLHADGHGN---AGDKYATW---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PG---PAPPLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIF-------DVRF 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TORKEEEPSSSSVFNONDPWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PMTRVGSADAAEI----NEVSQW------LADLT-AENDLPQ-----KAFVLHQFQLEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TEAGGYAV-LDLQPGRANFLDQAKMY---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   THSAHFKVDLDV-AGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKL-----LEMEEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATDMAAQYQEFEDQPVIPA-----FEVIATVASEFA-GDDGNYSNEFPVEDLVGYVDAI 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYGNQVS-EHTLGTVH--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---EQLAEKIKRGEEVTTELPGGGGLVFPGRRMVA-LYGHPSGPALGALGEQPAAEAVAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FLLESQAPKTIRDAFCVFEQNQG----LPLRRHHSDLYSH----YFGGLAE---TVLVVR 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NQEQMKMVAGLADRPLLALGDQ-----FGTG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWH 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SDDKLAAFPLQSKRDGEMSPIV---IASP----ESGISAVATARAFGAEIRFMDYPDPRF
                                                                                                                                                                                                                                                                                                                                                                Greenplate,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                Barbara G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.48;
                                                                                                                                                                                                                                                                                                                                                                John T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 95.5;
Pred. No. 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -EELLKRPNVGLALDPEWKIGPDEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         188; Indels 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 581;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . . . . . . . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MN - - - - NM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    288
```

```
. ତ୍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; LOCATION: (74)..(79)
; OTHER INFORMATION: Xaa - Unknown
US-10-005-530-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-912-020-364
                 Ş
                                                 а
                                                                               ő
                                                                                                                                                                                    US-09-912-020-364
                                                                                                                                                                                                SOFTWARE: FASTSEQ for W
SEQ ID NO 364
LENGTH: 878
TYPE: PRT
ORGANISM: E. Coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 364, Application US/09912020 Patent No. US20020045592A1
                                                                                                                                                Query Match
                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                       CURRENT FILING DATE: 2001-0, CORRENT FILING DATE: 2001-07-27 PTITING DATE: 2000-01-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: 60/117,405
PRIOR FILING DATE: 1999-01-27
NUMBER OF SEO ID NOS: 485
                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: GENES IDENTIFIED AS REQUIRED FOR PROLIFERATION TITLE OF INVENTION: ESCHERICHIA COLI FILE REFERENCE: ELITRA.001DV1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Zyskind, Judith
                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/09/912,020
                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                   148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       176 TP--QLYNN----HFFAKGVSDPYMVSVANGGTVPDDVVDSVGEKLQQAF--GYYKEKLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126 LYTHHFTDAKHDYYDIGAMRY----PDIPSMKRTFNLFKRTGMPLI-----KYYLDGEN
                                                                                  157 YLDIDQMIFNRELPQA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      257 QLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLW
                  194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44 LSREELTAVMRFLTQRLG--PGLVDAAQAR-----PSDNCVFSVELQLPPKAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
les 78; Conserv
                                                                                                                   Local Sin
hes 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74 XXXXXXGGGPPRK--VCIVGAG-----VSGLYIAMILDDLKIPNLTYDIFESSSRTGGR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVG-----PLPHPSYMRDVTVERHGGP 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LIREKVAKELNILTERLGEVPGIPPPNEGRFLGGGYSHDNLPSDPLYSSI----GGGSGG
--TAPRGLQSG------DRATWFGLYYN----ISGAGFFLHHVGLELLVNHKALDP- 237
                                                 HLDVGQQRLNLTIPQAFMSNRARGYIPPELWDPGINAGLLN----YNFSGNSVQNRIGGN 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TFSFGLGAFSGPRIFDVRFQGERLVYEISLQ-----EALAIYGGNS 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E---DFDKGFDELMLVDDMTT--REYLKRGGPKGEAPKYDF----FAIQWMETQN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION:
                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Trawick, John
Forsyth, R. Allyn
Froelich, Jamie M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yamamoto, Robert T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Carr, Grant J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ohlsen, Kari L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTNLFDQAF-SESVIDSFDFDNPTKPEWYCIEGGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22.5%;
                                                                                                                                                                                                                                                                     Windows Version 3.0
                                                                                                                                 2.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40;
                                                                                                               61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 95;
Pred. No.
                                                                                                                 Score 93.5; [
Pred. No. 28;
61; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                  --SGLLHHCCFYKHRGRNLVTMT--- 193
                                                                                                                                                  DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                   190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                Length 878;
                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        309
                                                                                                                 175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; 88
                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                     H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90
                                                                                                              27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18;
```

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
  밁
                                                                                   밁
                                                                                                                         Š
                                                                                                                                                                       밁
                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                         371 EGHTRYSITAGEYRSGNAQQEKTRFFQSTLLH--GLPAGWTIYGGTQ---LADRYRAFNF
                                                                                                                                                                                                                                                                                                                                                                                                                          311 VTIKONGYDIYNSTVPPGPFTINDIYAAGNSGDLQVTIKEADGSTQIFTVPYSSVPLLQR 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  204
                                            527 FVPMAVPWSPEHQLORLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGH
                                                                                      523 YNKRGKLQLTVTQQ-LGRTSTLYLSGSHQTYWGTSNVDEQFQAGLNTA-----FED--
                                                                                                                                                                     465 KSLNESGTNIQLVGYRYSTSGYFNFADTTYSRMNGYNIETQDGVIQVKPKFTDYYNLA--
                                                                                                                                                                                                               431 HYFGGLAETVLVVRSMSTLLNYDYVWDTVFH-----PSGAIEIRFYATGYISSAFL
                                                                                                                                                                                                                                                         426 GIGKNMGALG--
                                                                                                                                                                                                                                                                                               371 GMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS 430
                                                                                                                                                                                                                                                                                                                                                                                VASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGF 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RSRLTLGDGYTQGDIFDGINFRGAQLASDDN-----MLPDSQRGFAPVIHGIARGTAQ 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -ARWTIOKVFYOGRYYDSL----AQLEAQFEAGLVNVVLIPDNGTG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SHYAYLNLQSGLNIGAWRLRDNTTW----SYNSSDRSSGSKNKWQHINTWL---ERDIIPL
----INWTLSYSL----TKNAWQKGRDQMLALNVNIPFSHWLRSDSKSQWRH
                                                                                                                             FGATGKYGNQVSEHTLG---TVHTHSAH----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GSWSLKSPVPPGPAPPLQFYPQGPRFSVQ------GS----
                                                                                                                                                                                                                                                         -ALSVDM-----TQANSTLPDD----SQHDGQSVR----FLYN
                                                                                                                                FKVDLDVAGLENWVWAEDMV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----R 310
                                              580
        919
                                                                                                                                                                                                                                                         464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    257
                                                                                                                                  526
                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                           425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          278
                                                                                                                                                                            522
```

```
US-09-925-301-844; Repulication US/09925301; Sequence 844, Application US/09925301; Patent No. US20020052308A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION APPLICANT: Rosen et
                                                                                                                                                                                                                          SOFTWARE: Pa
SEQ ID NO 844
                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/925,301
CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05882
PRIOR FILING DATE: 2000-03-08
PRIOR APPLICATION NUMBER: 60/124,270
PRIOR FILING DATE: 1999-03-12
                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Rosen et al. TITLE OF INVENTION: Nuc
NAME/KEY: SITE
LOCATION: (64)
OTHER INFORMATION: )
NAME/KEY: SITE
                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 1694
                                                                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE: PA106
                                                                             LOCATION: (36)
OTHER INFORMATION:
                                                                                                                                                           ORGANISM: Homo sapiens
                                                                                                                                                                                    TYPE: PRT
                                                                                                                                            FEATURE:
                                                                                                                       NAME/KEY: SITE
                                                                                                                                                                                                       ENGTH:
                                                                                                                                                                                                       601
                                                                                                                                                                                                                                               PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleic Acids, Proteins
                                                                               Xaa
                                                                               equals any
                                                                               of the naturally occurring L-amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                                                                                                                                                                  Antibodies
```

NAME/KEY: SITE LOCATION: (152) OTHER INFORMATION:

Xaa

equals

any

of.

the naturally occurring L-amino acids

LOCATION: (358)
OTHER INFORMATION:

Xaa

equals

any

of the naturally occurring L-amino acids

NAME/KEY: SITE

NAME/KEY: SITE LOCATION: (383

INFORMATION:

Xaa

equals

any

0f

the naturally occurring

L-amino acids

OTHER INFORMATION:

Xaa equals any of the naturally occurring L-amino

LOCATION:

(103)

Xaa

equals any

of.

the naturally occurring

L-amino acids

LOCATION: (106)
OTHER INFORMATION: NAME/KEY: SITE

Xaa

equals

any

of.

the naturally occurring L-amino

acids

US-09-925-301-844

```
; NUMBER OF SEQ ID NOS: 147
; SOFTWARE: PATENTIN VERSION 3.1
; SEQ ID NO 33
; LENGTH: 635
; TYPE: PRT
; ORGANISM: Homo Sapiens
US-10-099-895-33
                                                     Š
                                                                                                   В
                                                                                                                                                                                           밁
         밁
                                                                                                                                             Š
                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 14
US-10-099-895-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: BERNDT, Michael C
APPLICANT: STOMSKI, Frank C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 2.3%; Score 93; DB 10; Length 601; Best Local Similarity 22.3%; Pred. No. 18; Matches 78; Conservative 32; Mismatches 112; Indels 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 33, Application US/10099895 Patent No. US20020177166A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/10/099,895
CURRENT FILING DATE: 2002-03-14
PRIOR APPLICATION NUMBER: PCT/AU00/01118
PRIOR FILING DATE: 2000-09-15
NUMBER OF SEQ ID NOS: 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: LOPEZ, Angel F
APPLICANT: GOTHRIDGE, MARK A
TITLE OF INVENTION: A BINDING MOTIF OF A RECEPTOR
FILE REFERENCE: 3991/0K379
300 TCQWQQQDHASSQGFFYHSRARCCPRDRYPIWENCEEEEKTNPGLQTPQFSRCHFKSRND 359
                                                   170 -----PQASGLLHH-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   438 HCVPEPSSSGQR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          193 TTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYY 252
                                                                                                                                     120 SELVYGPLPHPSYMRDVTVERH----GGPLPYHRRPV---LFQEYLDIDQMIFNREL--- 169
                                                                                                                                                                                      188 IATETC--CPALQRPHSASALDQSPCAQPTMPWQDGPKQTSPSREASALTAEGG----- 239
                                                                                                                                                                                                                                                                             132 LPAPPSII-KAMGGSOPGELQISWEEPAPEISDFLRYELRYGPRDPKNSTGPTVI---OL 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    457 GSAGPSSSQISGGAMDSQLHPNSGGFRPGTPSLHPYRSQPLYLPPGPAPP 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    253 DSLAQLEAQFEAGLYNVVLIPDNG--TGGSWSL----KSP--VPPGPAPP 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        384 DKDSDLRLVVGDSLKAEKELTASVTEAIPVSRDWELLPSAAASA-----EPQSKNLDSG 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155 QEYLDI-----DQMIFNRE------19QASGLLHHCCFYKHRGRNLVTM 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                327 RPPPAPHDGDRKELPREQPLPPGPI---GTERSQXTDRCTEPGPIRPSHRPGPPVQFGTX 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              103 REALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVER--HGGPL-PYHR--RPVLF--- 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            278 QVS-SGPCSQRSSPDGGLKGAAEGPPKRPGGSSPLNAVPCEGPP------GSEPPR 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         218 DIGTEALTPHIWNRLHTATSRKSYRPSSMEPWMEPLSPFEDVAGTEMSQSDSGVDLSGDS 277
                                                                                                                                                                                                                                                                                                                         19 LPHCPSVSPSAQPWTHPGQSQL-----FADLSREELTAVMRFLTQRLGPGLVDAAQA 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49 LTAVMRFLTQRLGP--GLVDAAQARP----SDNCVFSVELQLPPKAAALAHLDRGSPPPA 102
                                                                                                                                                                                                                               71 RPSDNCVFSVELQLPPKAAALAHLDRGSP-----PPAREALAIVFFGRQPQPNV 119
                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
mes 70; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12 DGGEPSQLPHC------PSVSPSA-QPWTHP------GQSQLFADLSREE 48
                                                                                         SCLISGLOPGNSYWLQLRSEPDGISLGGSWGSWSLPVTVDLPGDAVALGLQCFTLDLKNV 299
                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                          2.3%; Score 92.5; DB 9;
21.9%; Pred. No. 21;
ative 32; Mismatches 107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              32; Mismatches 112; Indels 128; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                          DB 9; Length 635;
                                                                                                                                                                                                                                                                                                                                                                          Indels 111; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----CFYKHRGR 187
                                                                                                                                                                                                                                                                                                                                                                            15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19;
```

	Db 220 IGPLPRKNIDTGMGVERIALVLQDVHNVYETDLLRPVIDTVARVAARAYDV 270	
	253 VOONGDAAVERROUNDOODONOSVEEDITEDOODOS ARVI	
	176 YDRGPEFGPAGGPIVSEDRYL	
	TATAGO TOTTO TOTAGO TRUMANDA TOTAGO DO TOTAGO TOTAG	
	ŋ	
	Db 68 TPDIDEVGITTRHNTFFOMAGNFSFGDYFKRGAIELAWALLTNSLAAGGYGLDPERIWT- 126	
	DPAR-	
	b 8 KRFLDHFVKAGHTEVPSASVILDDPNLLFVNAGMYQFVPFFLGQRTPPYPTATSIQKCIR 67	
	Qy 155 QEYLDIDQMIENRELPQASGLLHHCCFY-KHRGRNLVTMTTAPRGLQ 200	
37;	Query Match 2.3%; Score 92; DB 9; Length 904; Best Local Similarity 19.7%; Pred. No. 40; Matches 132; Conservative 92; Mismatches 255; Indels 192; Gaps	
	O 32 21	
	; SEQ LU NO 247	
	98	
	FILING DATE: 1999-11-12	
	APPLICATION NO	
	APPLICATION NUMBER	
	APPLICATION NUMBER	
	; PRIOR APPLICATION NUMBER: 60/134,093 ; PRIOR FILING DATE: 1999-05-14	
	FILING DATE: 1999-03-26	
	FILING DATE: 1999-02-01 APPLICATION NUMBER: 60/126.	
	APPLICATION	
	UMBEF	
	FILING DATE: 2000-0:	
	LING DATE: 2000-01-28	
	TE: 2000	
	APPLICAT	
	(F) (
	CANT: Marcotte, Edward M.	
	zz	
	ORMATION:	
	; Sequence 247, Application US/09712363 ; Patent No. US20020164588A1	
	363-247	
	Db 408 LEWOHPSSWAAQETCYQLRY 427	
	PARWTIQ	
	Db 360 SIIHILVEVTTAPGTVHSYLGSPFWIHQAVRLPTPNLHWREISSGHLE 407	
	OY 188 NCUTWTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKA 234	

393DWHFILESQAPKTIRDAFCVFEQNQGLPLRRHSDLYSHYFG 434 271 GNHEDDVRYRIIADHSRTAAILIGDGVSPGNDGRSYVLRRLIRRVIRSAKLLGIDAAIVG 330 435 GLAETVLVVRSMSTLLNYDVVWDTVFPPSGAIEIRFYATGYISSAFLEGAT 485 436 GKYGNQVSEHTLGTVH-THSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWS 535 486 GKYGNQVSEHTLGTVH-THSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWS 535 90 VLSGSDAFTLHDTYGFPIELTLEMAA-ETGLQVDEIGFRELMAEQRRRAKADAAA 443 536 PEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGH 580 444 RKHAHADLSAYRELVDAGATEFTGFDELRSQAFILGIFVDGKTPVVAHGVAGGA 498 581 PRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQND 633 581 PRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQND 633 59 GEGQRVELVDRFTPLYAESGGQIADEGTISGTGSSEAARAAVTDVGKIAKTL 550 634 PWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGN 680 681 GVGFFLRPYNF 691 681 GVGFFLRPYNF 691 681 GVGFFLRPYNF 691
KTIF RTAAILIC RTAAILIC VVRSMSTI I LVADFERI LVADFERI LVADFERI LVADFERI LVADFERI LVADFERI RTSAFFFI RTSAFFFI RTSAFFFI RTSAFFFI RTSAFFFI RTSAFFFI RTSAFFI RT

Search completed: May 20, 2003, 12:09:46 Job time: 29 secs

```
OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. score grea and is der
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB DB
Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No. is the number of results predicted by chance to have greater than or equal to the score of the result being pus derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-081-408-2_COPY_20_763
4010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LVCVLLVGRGGDGGEPSQLP.....QAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       May 20, 2003, 11:56:29; Search time 20 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              283224 seqs, 96134422 residues
L334

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.40

00.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gapext 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (without alignments)
3576.200 Million cell updates/sec
                                                                     hypothetical prote
copper amine oxida
subtilisin-type pr
                                                                                                                                                                                                                                                                                                                     probable amine oxi phenylethylamine o
                                                                                                                                                                                                                                                                                                                                         probable amine
                                                                                                                                amine oxidase (cop
                                                                                                                                                                                     amine oxidase (cop
probable peroxisom
                                                                                                                                                                                                                                                                                                     amine
                                                                                                                                                                                                                                                                                                                                                                              amine oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                      amine
                                                                                                                                                                                                                                                                                                                                                                                                                                        amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                       amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Description
                                     choline kinase (EC
                                                       phosphoribosylform
                                                                                                                                                                       copper amine oxida
                                                                                                                                                                                                                                            probable copper
                                                                                                                                                                                                                                                                                                                                                                                                                  oxidase
oxidase
oxidase
oxidase
oxidase
oxidase
                                                                                                                                                                                                                                                                                oxidase (cop
                                                                                                                                                                                                                                                                oxidase (cop
                                                                                                                                                                                                                                                                                                                                                                                                  oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    printed,
                                                                                                                                                                                                                            oxida
                                                                                                                                                                                                                                                                                                                                                             oxida
                                                                                                                                                                                                                                                                                                                                                                                                                                                       (cop
(cop
(fla
                                                                                                                                                                                                                                                                                                                                                                                (cop
                                                                                                                                                                                                                                                                                                                                                                                                  (cop
                                                                                                                                                                                                                                                                                                                                                                                                                  (cop
```

PIGNMENT

RESULT JC5234

C;Accession: JC5234
R;Zhang, X.; McIntire, W.S.
Gene 179, 279-286, 1996
A;Title: Cloning and sequencing of a copper-containing,
A;Reference number: JC5234; MUID:97128319; PMID:8972912

A;Contents: placenta A;Accession: JC5234 A;Status: preliminary C;Species: Homo sapiens (man)
C;Date: 13-Mar-1997 #sequence_revision

13-Mar-1997

precursor precursor -

18-Feb-2000

topa

quinone-containing

mon

amine oxidase (copper-containing) (EC 1.4.3.6) AOC2

A;Gene: GDB:AOC2; DAO2
A;Cross:references: GDB:4562632
A;Cross:references: GDB:4562632
A;Map position: 17q21-17q21
C;Superfamily: amiloride-binding protein
C;Keywords: copper; metalloprotein; oxidoreductase; quinoprotein; topaquinone
F;1-19/Domain: signal sequence *status predicted <SIG>
F;20-763/Product: amine oxidase (copper-containing) *status predicted <MAT>
F;444,520,522/Binding site: copper (His) *status predicted A;Molecule type: mRNA
A;Residues: 1-763 <ZHA>
A;CHA>
A;Coss-references: GB:U39447; NID:g1399031; PIDN:AAC50919.1; PID:g1399032
A;Comment: This enzyme catalyzes the oxidation of primary amines to the correspondi C:Comment: and 1 molecule of covalently-bound topa quinone. It also can scavenge circu 밁 δÃ В δÃ 밁 Ş 밁 Š F;471/Modified site: topaquinone (Tyr) #status predicted C; Genetics: Query Match Best Local S Matches 744 241 140 181 121 Local Similarity hes 744; Conserv 80 61 20 FYKHRGRNLVTMTTAPRGLQSGDRATWEGLYYNISGAGFFLHHVGLELLVNHKALDPARW FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW 100.0%; Score 4010; DB 2; ilarity 100.0%; Pred. No. 1.5e-311; Conservative 0; Mismatches 0; Length Indels 763; 0 Gaps 300 259 240 199 180 139 120 79 60 0

```
A;Cross-references: GB:S69583; NID:g546215; PIDN:AAB30397.1; PIDR:R;Mu, D.; Janes, S.M.; Smith, A.J.; Brown, D.E.; Dooley, D.M.; K.J.; Biol. Chem. 267, 7979-7982, 1992

A;Title: Tyrosine codon corresponds to topa quinone at the active A;Reference number: A38081; MUID:92235001; PMID:1569055

A;Accession: B38081

A;Molecule type: protein

A;Residues: 463-465, 70, 467-473, 'X', 475-485 <MU2>
A;Residues: 463-465, 'D', 467-473, 'X', 475-485 <MU2>
A;Title: A new redox cofactor in eukaryotic enzymes: 6-hydroxydo; A;Reference number: A48242; MUID:90260648; PMID:2111581
A;Accession: A48242
A;Status: preliminary
A;Molecule type: protein
A;Residues: 468-472 <JAN>
A;Residues: 468-472 <JAN>
A;Residues: 468-472 <JAN>
R;de Blase, D; Agostinelli, E.; de Matteis, G.; Mondovi, E
Eur. J. Biochem. 237, 93-99, 1996
A;Title: Half-of-the-sites reactivity of bovine serum amine
A;Reference number: $65408; MUID:96203913; PMID:8620899
A;Accession: $65408
A;Molecule type: protein
A;Residues: 463-469,'X',471-487 <DEB>
C;Superfamily: amiloride-binding protein
C;Keywords: copper; glycoprotein; oxidoreductase; quinoprot
F;1-16/Domain: signal sequence #status predicted <SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amine oxidase (copper-containing) (EC 1.4.3.6), serum, pr (Species: Bos primigenius taurus (cattle) C:Date: 09-Sep-1994 #sequence_revision 06-Feb-1995 #text_C:Accession: A54411; B38081; A48242; S65408 F.Mu, D.; Medzihradszky, K.F.; Adams, G.W.; Mayer, P.; Hi J. Biol. Chem. 269, 9926-9932, 1994 A;Title: Primary structures for a mammalian cellular and A;Reference number: A54411; MUID:94193686; PMID:8144587 A;Accession: A54411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: mRNA
A; Residues: 1-762 <MUA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACLPQAAACAPDLPAFSHGGFSHN 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHELLESQAPKTIRDAFCVFEQNQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SMARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL
                                                                                                                                                                                                                                                                                                                      c enzymes: 6-hydroxydopa
PMID:2111581
                                                                                                                                                                                                        Mondovi,
         quinoprotein;
<SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #text_change
                                                                                                                                                                                                                                                                                                                                                                                  S.; Maltby,
                                                                                                                                                              amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hines,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              precursor -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             serum
                                                                                                                                                                                                        В.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                active
                                                                                                                                                                 oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PID:g546216
.; Klinman, v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         W.M.; Burlingame,
                                                                                                                                                                                                        Morpurgo,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             copper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-Feb-2000
                           topaquinone
                                                                                                                                                                                                                                                                                                                                                                                    D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                site
                                                                                                                                                                                                                                                                                                                                           at the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              bovine
                                                                                                                                                            Reactivity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amine
                                                                                                                                                                                                                                                                                                                                                                                    Burlingame,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                           active
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              copper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oxidase
                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A.L.;
                                                                                                                                                                                                                                                                                                                                           site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amine
                                                                                                                                                                                                                                                                                                                                                                                  A.L.;
                                                                                                                                                              cher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
```

```
F;17-762/Product: amine oxidase (copper-containing) *status prediff;136,231,665/Binding site: carbohydrate (Asn) (covalent) *status F;470/Modified site: topaquinone (Tyr) *status experimental
                                                                                                õ
                                                                                                                                             Š
                                                                                                                                                                    B
                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                밁
        Ş
                                밁
                                                   δÃ
                                                                            밁
                                                                                                                         밁
                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                 Query Match
           294
                                 252
                                                      234
                                                                            192
                                                                                                 174
                                                                                                                         132
                                                                                                                                              114
                                                                                                                                                                     72
                                                                                                                                                                                          54
                                                                                                                                                                                                                 12
                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                             4 VLLVGR--GGDGGE------PSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVM
                                                                         PLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIY
                              QPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQAS
                                                                                                                                                                                   RFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGR 113
                                                                                                                        QPQPNVTELVVGPLPQPSYMRDVTVERHGGPLPYYRRPVLLREYLDIDQMIFNRELPQAA
                                                                                                                                                                     SFLTQQLGPDLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGG
                                                                                                                                                                                                                 LLVMGREEGGVGSEEGVGKQCHPSLPPRCPSRSPSDQPWTHPDQSQLFADLSREELTTVM
                                                                                                                                                                                                                                                              609;
                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                        83.1%;
                                                                                                                                                                                                                                                             59;
                                                                                                                                                                                                                                                                       Score 3331;
Pred. No. 2
                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                        DB 2;
.2e-257;
                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                               predicted
                                                                                                                                                                                                                                                             10;
                                                                                                                                                                                                                                                                                                                    cted <MAT> predicted
                                                                                                                                                                                                                                                            Gaps
          353
                                 311
                                                                            251
                                                                                                  233
                                                                                                                          191
                                                                                                                                              173
                                                                                                                                                                     131
                                                                                                                                                                                                                 71
                                                                                                                                                                                                                                        5
                                                      293
                                                                                                                                                                                                                                                             Ņ
```

```
RESULT 3
S34656
amine oxidase (copper-containing) (EC 1.4.3.6), kidney, precursor - rat
anine oxidase (copper-containing) (EC 1.4.3.6), kidney, precursor - rat
N; Alternate names: amiloride-binding protein, long form
N; Contains: amiloride-binding protein, short form
C; Species: Rattus norvegicus (Norway rat)
C; Date: 13-Jan-1995 **sequence_revision 13-Jan-1995 **text_change 18-Feb-2000
C; Accession: S36847; S36848; I51904; S34656; S34657
R; Linguegila, E.; Renard, S.; Voilley, N.; Waldmann, R.; Chassande, O.; Lazdunski,
Eur. J. Biochem. 216, 679-687, 1993
A; Title: Molecular cloning and functional expression of different molecular forms
A; Reference number: S36847; MUID:93387321; PMID:8375402
```

of X

732

312 354 414 413 492 492 553 554 655 654 654 714

ACEVNPLACLPQAAACAPDLPAFSHGGF

741

SCEINPLACLPQAATCAPDLPVFSHGGY

 GPMPQNSPMERAFSWGRYQLAITQRKETEPSSSSVFNQNDPWTPTVDFSDFINNETIAGK

653 671 551 593 611

EPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGK

533

491

473

431

371

EQNKGLPLRRHHSDFLSHYFGGVAQTVLVFRSVSTMLNYDYVWDMVFYPNGAIEVKLHAT

```
R; Verity, K.; Fuller, P.J.
Am. J. Physiol. 266, C1505-C1512, 1994
A; Title: Isolation of a rat amiloride-binding protein cDNA clone:
A; Reference number: I51904; MUID:94295632; PMID:8023885
A; Accession: I51904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Molecule type: mRNA
A;Residues: 529-746 <LIN2>
A;Cross-references: EMBL:X73912; NID:g395066;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Accession: S36847
A; Molecule type: mRNA
A; Residues: 1-746 <LIN1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; Keywords: alternative initiators; oxidoreductase F;1-746/Product: amine oxidase (copper-containing), kidney, precursor \#status F;529-746/Product: amiloride-binding protein short form \#status predicted <SHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: GB:S70383; NID:g547214; PIDN:AAB31157.1; A;Note: in Genbank entry S70383, release 116.0, the source is C;Superfamily: amiloride-binding protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Status: preliminary; translated from GB/EMBL/DDBJ A; Molecule type: mRNA A; Residues: 530-86, 'T', 588-632 <VER>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession: S36848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: EMBL:X73911; NID:g395064; PIDN:CAA52116.1;
                                                                                                                                                       δÃ
                                                                                                                                                                                            밁
                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                            Ş
                                                                                                                   밁
õ
                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      148
                                                                                                                                                                                                496
                                                                                                                                                                                                                                                                             436
                                                                                                                                                                                                                                                                                                                 432
                                                                                                                                                                                                                                                                                                                                                        376
                                                                                                                                                                                                                                                                                                                                                                                              375
                                                                                                                                                                                                                                                                                                                                                                                                                                     316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 210
    671
                                                                                                                                                         552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNV 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KARVFADLSPQEIKAVHSFLMNREELGLQPSKEPTLAKNSVFLIEMLLPKKKHVLKFLDE 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDR 96
                                                                                                                                                                                                                                                                                               YFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYGNQ 491
                                                                                                                                                                                                                                                                                                                                                        VTHELAPGIDCPETATFLDAFHYYDSDGPVHYPHALCLFEMPTGVPLRRHFNSNFKGGFN
                                                                                                                                                                                                                                                                                                                                                                                                                                 VVLEDPLPNGTE-----KPPLFSSYKPRGEFHTPVNVAGPHVVQPSGPRYKLEGNTVLYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VLIPD---NGTGGSWSLKSPV------PPGPAPPLQFYPQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Y----DLLYH-TLKRATMPLHQFFLDTTGFSFLGCDDRCLTFTDVAPRGVASGQRRSWFI 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YLDIDOMIFNRELPOASGLLHH------CCFYKHRGRNLVTMTTAPRGLQSGDRATWFG 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GRKGPNREARAVIFFGAQDYPNVTEFAVGPLPRPYYIRALS-PRPGHHLSWSSRPISTAE 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQE 156
                                                                            QLAVTQRKEEEPSSSSYFNQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFLHIPHAE
                                                                                                                                                                                                                                VSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLE
                                                                                                                                                                                                                                                                             FYAGLKGYVLVLRTTSTVYNYDYIWDFIFYSNGVMEAKMHATGYVHATFYTPEGLRHGTR
                                                                                                                                                                                                                                                                                                                                                                                    YTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS---H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VQRYVE--GYFLHPTGLEILLDHGSTDVQDWRVEQLWYNGKFYNNPEELARKYAVGEVDT
    DIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACA
                                                                                                                   QEHQAAFRFGQTLPKYLLFSSPQKNCWGHRRSYRLQIHSMAEQVLPPGWQEERAVTWARY
                                                                                                                                                       MEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERY 611
                                                                                                                                                                                                  LQTHLLGNIHTHLVHYRVDMDVAGTKNSFQTLTMKLENLTNPWSPSHSLVQPTLEQTQYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34.9%; Score 1398.5; 40.3%; Pred. No. 3.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    %; Pred. No. 3.3e-103; 127; Mismatches 266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIDN:CAA52117.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              İS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PID:g547215
s designated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PID:g395065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PID: 9395067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tissue
                                                                                 670
                                                                                                                                                                                                                                                                               495
                                                                                                                                                                                                                                                                                                                                                          435
                                                                                                                                                                                                                                                                                                                                                                                                431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      314
                                                                                                                       615
                                                                                                                                                                                                                                        551
                                            675
                                                                                                                                                                                                  555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      distribution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <SHRT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ā
```

AO Q

23 91

PGTLPRKAGVFSDLSNQELKAVHSFLWSKKELRLQPSSTTTMAKNTVFLIEMLLPKKYHV LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRR

```
amine oxidase (copper-containing) (EC 1.4.3.6) ABP1 precursor - N; Alternate names: amiloride-binding protein; diamine oxidase; h C: Species; Homo sapiens (man) C; Date: 07-Jul-1995 #sequence_revision 07-Jul-1995 #text_change C; Accession: A54053; A54410: I38708; A38276; S42495 C; Accession: A54053; A54410: I38708; P: Lazdunski, M. J. Biol. Chem. 269, 14484-14489, 1994 A; Title: The human gene for diamine oxidase, an amiloride binding A; Reference number: A54053; MUID:94237856; PMID:8182053 A; Accession: A54053; MUID:94237856; PMID:8182053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: EMBL:X78212; NID:g463242; PIDN:CAA55046.1; PID:g463243 R;Novotny, W.F.; Chassande, O.; Baker, M.; Lazdunski, M.; Barbry, P. J. Biol. Chem. 269, 9921-9925, 1994 A;Title: Diamine oxidase is the amiloride-binding protein and is inhibited A;Reference number: A54410; MUID:94193685; PMID:8144586 A;Accession: A54410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Molecule type: mRNA, A;Molecule type: mRNA, A;Residues: 1-331, F;,333-751 <RES> A;Cross-references: EMBL:U11862; NID:g533535; PIDN:AAC50270.1; PID:g533536 A;Cross-references: EMBL:U11862; NID:g533535; PIDN:AAC50270.1; PID:g533536 A;Barbry, P.; Champe, M.; Chassande, O.; Munemitsu, S.; Champigny, G.; Ling Proc. Natl. Acad. Sci. U.S.A. 87, 7347-7351, 1990 A;Title: Human kidney amiloride-binding protein: CDNA structure and function; A;Reference number: A38276; MUID:91017502; PMID:2217167 A;Accession: A38276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: mRNA
A;Rosidues: 1-265,'RCLGARGMTAQRSRPSSPPQAPRDFPQPHPCERPPLGPAPRPSLQAGGQRCALRRLELCLPV'
A;Cross-references: GB:M55602; GB:M56335; NID:9387655; PIDN:AAA58358.1; PID:917796
A;Note: this sequence has been corrected in reference A54053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Biochem. Genet. 33, 261-268, 1995
A;Title: cDNA sequences of variant forms of human placenta diamine A;Reference number: I38708; MUID:96113540; PMID:8595053
A;Accession: I38708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Molecule type: protein
A;Residues: 20-27, 'A', 29-39 <NOV>
A;Cross-references: PIDN:AAB30395.1; PID:g546213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-751 <CHA>
                                                                                                                                                                                       A;Description: oxidation of putrescine and histamine C;Superfamily: amiloride-binding protein C;Keywords: homodimer; oxidoreductase; quinoprotein; to F;1-19/Domain: signal sequence #status predicted <SIG>F;461/Modified site: topaquinone (Tyr) #status predict.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R; Zhang,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Note: sequence extracted from NCBI backbone (NCBIP:146046)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Experimental source: placenta
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: GDB:127105; OMIM:104610 A;Map position: 7q31-7q32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Gene: GDB: ABP1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                      C; Function:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       676 DVPNTATPGNSVGELLRPENFFPEDPSLASRDTVIV-WPQDKGLNRVQ--RWIPEDRRCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   733 VS-PPFSYNG
      <u>3</u>
                                                                                                Toca T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X.; Kim,
   PWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAA 90
                                                                                                                                                                                                                                                                                                                                                                                   524/1;
                                                                                                Similarity
                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  J.; McIntire,
                                                                                                                                                                                                                                                                                                                                                                                   619/2;
                                                                                                                                                                                                                                                                                                                                                                                   663/3
                                                                                             34.8%; Score 1394; 39.8%; Pred. No. 7
                                                                       124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     w.s.
                                                                          Mismatches
                                                                                                       DB 2;
7.6e-103;
                                                                                                                                                                                           predicted
                                                                                                                                                                                                                                                           topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 oxidase; histaminase
                                                                                                                                 Length
                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       is inhibited by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-Feb-2000
                                                                             38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      functional exp
                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lingueglia,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Molecula
                                                                                11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           amilo
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                   δÃ
                                                                                                                                                             A;Cross-references: GB:D10208; NID:g216721; PIDN:BAA01060.1; C;Superfamily: amine oxidase (copper-containing) C;Keywords: oxidoreductase
                                                                                                                                                                                                                                                                                                                                        amine oxidase (flavin-containing) (EC 1.4.3.4) precursor - Klebsiella pneumo C;Species: Klebsiella pneumoniae C;Date: 30-Sep-1993 *sequence_revision 30-Sep-1993 *text_change 02-Sep-2000 C;Accession: B41836 R;Sugino, H; Sasaki, M; Azakami, H; Yamashita, M.; Murooka, Y. J. Bacteriol. 174, 2485-2492, 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
B41836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
  밁
                                                                                                                                                                                                                                                                                                A;Title: A monoamine-regulated Klebsiella aerogenes operon containing A;Reference number: A41836; MUID:92210491; PMID:1556068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-755 <SUG>
                                                                                                                                                                                                                                                                                 A;Reference number: A41836;
A;Accession: B41836
                                                                                                                                                                                                                                                            A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83
  82
                                        14
                                                                                                                        Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGLVNVVLIPDNGTGGSWSLKSPVPP------GPAP-----PLQFYPQGPRFSVQG
                                     GEPSQLPHCPSVSPSAQPWT-----HPGQSQLFA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LRHGTRLHTHLIGNIHTHLVHYRVDLDVAGTKNSFQTLQMKLENITNPWSPRHRVVQPTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GKSLDLP-VPVVMKEGKAWVSDTFINDVFQSGLDQTFQVEKRPHPLNSLSAAEISKAVT- 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EDRDCSMP-PPFSYNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QAAACAPDLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HIPHSEDIPHTATPGNSVGFLLRPFNFFPEDPSLASRDTVIV-WPRDNGPNYVQ--RWIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FKGGFNFYAGLKGQVLVLRTTSTVYNYDYIWDFIFYPNGVMEAKMHATGYVHATFYTPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GWGLGSVTHELAPGIDCPETATFLDTFHYYDADDPVHYPRALCLFEMPTGVPLRRHFNSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAVLYGGWSFAFRLRSSSGLQVLNVHFGGERIAYEVSVQEAVALYGGHTPAGMQTKYLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDG 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DGEVDVVVLEDPLPGGKGHDSTEEPPLFSSHKPRGDFPSPIHVSGPRLVQPHGPRFRLEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RRSWLIIORYVE--GYFLHPTGLELLVDHGSTDAGHWAVEQVWYNGKFYGSPEELARKYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PVLFQEYLDIDQMIFNRELPQASGLLHH------CCFYKHRGRNLVTMTTAPRGLQSGD 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ITWARYPLAYTKYRESELCSSSIYHQNDPWHPPVVFEQFLHNNENIENEDLVAWVTVGFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PISTAEY----ALLYHTLQEATKPLHQFFLNTTGFSFQDCHDRCLAFTDVAPRGVASGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EQTQYSWERQAAFRFKRKLPKYLLFTSPQENPWGHKRSYRLQIHSMADQVLPPGWQEEQA
                                                                                                   Similarity
                                                                                                10.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            740
                                                                                101;
                                                                         Score 413; DB
Pred. No. 1.4e
01; Mismatches
                                                                                                DB . 4e-
                                                                                                24;
                                                                                                                 Length
                                                                           Indels 206;
                                     -- DLSREELTAVMRF
                                                                                                                                                                                                 PID:d1001529; PID:g216723
                                                                         Gaps
                                                                                                                                                                                                                                                                                                                       the
                                                                                                                                                                                                                                                                                                                                                                                                                                             pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  254
                                                                                                                                                                                                                                                                                                                       monoamine
                                                                           32;
                                                                                                                                                                                                                                                                                                                       OX10
                                                                                                                                                                                                                  C;Date: 12-Sep-1997 #sequence_revision 17-Sep-1997 #text_change 01-Mar-2002 C;Accession: E64889; I40923; S65442 R;Blattner, F.R.; Plunkett III, G;; Bloch, C.A.; Perna, N.T.; Burland, V.; 1.A.; Rose, D.J.; Mau, B.; Shao, Y. Science 277, 1453-1462, 1997 A;Title: The complete genome sequence of Escherichia coli K-12. A;Reference number: A64720; MUID:97426617; PMID:9278503
                                                                                                                                                                                                                                                                                                                                                         amine oxidase (copper-containing) (EC 1.4.3.6) tynA precursor · Escherichia N;Alternate names: monoamine oxidase; tyraminase; tyramine oxidase C;Species: Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
E64889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                A;Title: Nucleotide sequence of A;Reference number: I40923
                                                      A;Cross-references: GB:AE000235; GB:U00096; NID:g1787643; PIDN:AAC74468.1; A;Experimental source: strain K-12, substrain MG1655 R;Azakami, H; Yamashita, M; Roh, J. J. Ferment. Bioeng. 77, 315-319, 1994
                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-757 <BLAT>
                                                                                                                                                                                               A; Reference number: A; Accession: E64889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                            A;Status: nucleic acid sequence not shown; translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VVDLEAKKIIKIEEGPVIPVPMEPRPYDGRDRNAPAVKPLEITEPEGKNYTITGDTIHWQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALDPARWTIQKV---FYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHK 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PQPNVSELVVGPLPHPSYMRDVTVE-RHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPA-REALAIVFFGRQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTHPAATGAKFAPDEWIYHRLSFMDKQLWVTRYHPTERYPEGKYPNRSAHDTGLGQYAK-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS--NKWGHPRGYRIQMLSFAG 593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T------GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NWDFHLRLNSRVGPILSTVTYNDNGTKRQVMYEGSLGGMIVPYGDPDVGWYFKAYLDSGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---LKS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ITDPGKVVTTPLTVGFFDGK---DGLQQ------DARLLKVVSYLDTGDGNYWAHPIENLVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---HVIEAVV-DLQNKKILSWTPIKGAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----IVKAAPEFQPNTRFTEISLHEPDKAAVWAFALQGTPVDAPRTADVVMLDGK-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VDF SDF INNET I AGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --EPLPQNSSMA-----RGFSWERYQLAVTQRKEEE-----PSSSSVFNQNDPWAPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGPRTSTMQVNQYTIDSEQKAAQKFDPGTIR----LLSNTSKENRMGNPVSY--QIIPYAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TMHDPSAKEDTRYGTLIDHNIVGTTHQHIYNFRLDLDVDGENNTLVAMDPEVKPNT---A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KHLEMGKPNVSTERRELVVRWISTVGNYDYIFDWVFHDNGTIGIDAGATGIEAVKGVLAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SHYFGG-----LAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YGMGTLTSPIVRGKDAPSNAVLLDETIADYTGKPTTIPGAVAIFE-----RYAGPEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LWTFSFGLGAFSGPRIFDVRFQG----ERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DDESLTNHDDVVWITTGTTHVARAEEWPIMPT--EWALALLKPWNFFDETPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----PVPPGPAP------PLQF-YPQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the gene
                                   for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----MVLLDDFVSVQNII-----
                                   monoamine
                                   oxidase
                                                                                                                                                                              not shown
```

697

699

535

484 468

585

416

369 356 314

243

229

282

(maoA)

from

Escherichi

PID:g17876

Riley,

3

coli

(str

```
R;Steinebach, V.; Benen, J.A.E.; Bader, R.; Postma, P.W.; de Vries, S.; Duine, J.A. Eur. J. Biochem. 237, 584-591, 1996
A;Title: Cloning of the macA gene that encodes aromatic amine oxidase of Escherichia A;Reference number: S65442; MUID:96235221; pMID:8647101
A;Accession: S65442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Function:
A; Description: catalyzes oxidation of phenylethylamine and water to ph A; Description: catalyzes oxidation of phenylethylamine catabolism A; Pathway: amino acid metabolism; phenylethylamine catabolism A; Note: 2,4,5-trihydroxyphenylalanine quinone (topaquinone) cofactor; C; Superfamily: amine oxidase (copper-containing) C; Keywords: copper; oxidoreductase; quinoprotein; topaquinone F;1-33/Domain: signal sequence #status predicted <SIG>F;34-757/Product: amine oxidase (copper-containing) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Molecule type: DNA
A;Residues: 1-247,'E', 249-257,'VI',260-276,'I',277-287,289,'I',291-455,'P',457-658,'D'
A;Cross-references: GB:D23670; NID:9474301; PIDN:BAA04900.1; PID:9809499
A;Experimental source: strain K-12; substrain H3110
A;Experimental source: strain K-12; substrain H3110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: protein A; Residues: 41-48 <STE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Gene: tynA;
C; Complex: hor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Experimental source: strain C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
           amine oxidase (copper-containing) (EC 1.4.3.6)
C:Species: Arthrobacter globiformis
C:Date: 13-Apr-1995 #sequence_revision 03-Nov-199
C:Accession: A56102
                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      246 FYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWS------LKS
                                                                                                                                                                                                   716
                                                                                                                                                                                                                                           662
                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                            551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YFDGK--DGLKQ----DARLLKVISYLDVGDGNYWAHPIENLVAVVDLEQKKIVKIEEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PVPPGP-----AP---PLQFY-PQGPRFSVQGSRVASSLWTFSFGLGAFSGPR 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLL 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGY----ISSAFLFGATGK----YGN 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGG-----LAET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IFDVRFQG----ERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVD 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PVVPVPMTARPFDGRDRVAPAVKPMQIIEPEGKNYTITGDMIHWRNWDFHLSMNSRVGPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           homodimer
                                                                                                                                                                                                                                                                                                                                                                                                                         EMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAG--EPLPQNSSMA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LIDHNIVGTTHQHIYNFRLDLDVDGENNSLVAMDPVVKPNT---AGGPRTSTMQVNQYNI 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APSNAVLLNETIADYTGVPMEIPRAIAVFE-----RYAGPEYKHQEMGQPNVSTERR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ISTYTYNDNGTKRKYMYEGSLGGMIVPYGDPDIGWYFKAYLDSGDYGMGTLTSPIARGKD
                                                                                                                                                                                                   GTTHVARAEEWPIMPT - - EWVHTLLKPWNFFDETPT
                                                                                                                                                                                                                                      GFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS 697
                                                                                                                                                                                                                                                                                          YHRLSFMDKQLWVTRYHPGERFPEGKYPNRSTHDTGLGQYSK--DNESLDNTDAVVWMTT 715
                                                                                                                                                                                                                                                                                                                                                                               GNEQDAAQKFDPGTIR-LLSNPNKENRMGNPVSY--QIIPYAGGTHPVAKGAQFAPDEWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ELVVRWISTVGNYDYIFDWIFHENGTIGIDAGATGIEAVKGVKAKTMHDETAKDDTRYGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      142;
                                                                                                                                                                                                                                                                                                                                -RGFSWERYQLAVTQRKEEEPSSSSVF-NQNDPWAPTVDFSDFINNETIAGKDLVAWVTA 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      h 9.9%; Score 397.5; DB 2; Similarity 27.5%; Pred. No. 2.5e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   maoA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
Fukui,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
H
::
                                            03-Nov-1995
Shimizu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.5e-23;
hes 211;
                                                                                                                                                                                                        749
M
                                                                                    Arthrobacter globiformis
                                            #text_change
Yorifuji,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 757;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
⊢]
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          , 68
                                            20-Jun-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   phenylacetaldehyde
Sato,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    copper cofactor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      311
                                                                                                                                                                                                                                                                                                                                                                                        657
H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20;
    Ozaki,
    ۲.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
```

```
A;Reference number: A56102; MUID:95181469; PMID:7876243
A;Accession: A56102
A;Status: preliminary
A;Molecule type: DNA
A;Hesidues: 1-684 <CHO>
A;Cross-references: GB:D38508; NID:g994746; PIDN:BAA07517.1; PID:g994747
A;Note: authors translated the codon TTG for residue 239 as Phe
C;Superfamily: amine oxidase (copper-containing)
C;Keywords: oxidoreductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            J. Biol.
A;Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
RESULT
G90330
amine o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                   망
                                                                                                                                                                               Ş
                                                                                                                                                                                                                  밁
                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        294
                                                                                                                                                                                                                                                                                     479
                                                                                                                                                                                                                                                                                                                     529
                                                                                                                                                                                                                                                                                                                                                      419
                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                     409
                                                                                                                                                     592
                                                                                                                                                                                                                     536
                                                                                                                                                                                                                                                    588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                  œ
                                                                                   650
                                                                                                                  705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chem. 270, 4712-4720, 1995
Copper/topa quinone-containing histamine oxidase from Arthrobacter globifo:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PHCPSVSPSAQPWT--HPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCV 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AFCVFEQNOGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEI 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VVPYGDPSPYRSWONYFDSGEYLVGRDANSLRLGCDCLGDITYMSPVVADDFGNPRTIEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVDCPYLATYVDWHELLESQAPKTIRD 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IEIMQPEGPSFTLEGNHLSWAGWDLRVGFDAREGLVLHQLHHSHKGRRRPVIHRASISEM 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVR--FQGER--LVYEISLQEA 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AHPIDGLVAFVDVENRRVNHL-----IDDGPVPV---PEVNGNYTDPAIRGELRTDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPD-NGTGGSWSLKSPVPPGPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -TARGLTPAQVRVAPLSAGVFEYGNEEGKRL-----LRGLGFRQDHP----ADHPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YKHRGRNLVTMTTAP------RGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LVVD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FSVELQLPPKAAALAHLDRGSPP-----PAREALAIVFFGRQPQ-----PNVSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSTPLVQDPPVPATLVHAAAQHPLEQLSAEEIHEARRILAE---AGLVG------
                                                                                                                                                                                                                                                                                                                                                                                                                    GICIHEEDAGILWK--HTDEWAGSDEVRRNRRLVVSFFTTVGNYDYGFYWYLYLDGTIEF
                                                                                                                                                                                                                                                                                                                                                  EAKATGIVFTAALPDKDYAYASEIAPGLGAPYHQHLFSARLDMMIDGDANRVEELDLVRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        al Similarity
182; Conserv
                                                                                                                                                                                                                                                                                                                 PMAVPWSPEHOLORLOVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIO
                                                                                                                                                                                                                                                                                                                                                                                  RFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFV
                                                                                                                YFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGG
                                                                                                                                                 AQDRDIDGQDLVVWHSFGLTHFPRPEDWP--IMPVDTTGFTLKPHGFFDENPTLNVPSSA
                                                                                                                                                                               INNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFEDEDPSFYSADSI 704
                                                                                                                                                                                                                  P---EGNPTLAMADDSSIASRAAFARHHLWVTRHAEEELYAAGDFVNQHPGGAVLP-AYV
                                                                                                                                                                                                                                               MLSFAGEP----LPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDF
                                                                                                                                                                                                                                                                                  PKG-PGNPHG--NAFTQKRTLLARESEAVRDADGAKGRVWHISNPDSLNHLGHPVGYTLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9.4%; So ilarity 24.1%; Pi Conservative 107;
                                                                                     AGHCGTG----SEREHAAPGGTAVGHSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---RRELNPEADG-----QLPVLLEEFGIIEDIL--SEDPQWNAAL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ·ESTRFAYLGLIEPPKTTRQGDVTGAARLVRAMLWDAAQSRSLDVRLSLATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 377; DB 2;
Pred. No. 9.1e-22;
17; Mismatches 343
                                                                                                                       740
                                                                                      673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52
                                                                                                                                                                                                                                                                                                                                                                                          528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                            591
                                                                                                                                                                                                                                                           644
                                                                                                                                                                                                                                                                                           535
                                                                                                                                                                                                                                                                                                                            587
                                                                                                                                                                                                                                                                                                                                                             478
                                                                                                                                                                                                                                                                                                                                                                                                                           418
                                                                                                                                                          649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28;
```

oxidase

(copper-containing) (tynA)

[imported]

Sulfolobus

solfataricus

for

```
RESULT
A48646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C; Accession: G90330
C; Accession: G90330
R; She, Q.; Singh, R.K.; Confalonieri, F.; Zivanovic, Y.; Allard, G.; Jong, I.; Jeffries, A.C.; Kozera, C.J.; Medina, N.; Peng, X.; Thi-Nc arrett, R.A.; Ragan, M.A.; Sensen, C.W.; Van der Oost, J. submitted to GenBank, April 2001
submitted to GenBank, April 2001
                                                                밁
                                                                                             δ
                                                                                                                                  В
                                                                                                                                                                 Ş
                                                                                                                                                                                                       В
                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Molecule type: DNA
A;Residues: 1-660 <KUR>
A:Cross-references: GB:AE006641; NID:gl3814942; PIDN:AAK41902.1; GSPDB:GN00155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Reference number: A99139
A; Accession: G90330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Description: Sulfolobus solfataricus complete genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;Superfamily: amine oxidase (copper-containing)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 175; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          595
                                                                                                                                                                                                                                                                                                                                                                              435
                                                                                                                                                                                                                                                                                                                                                                                                                323
              9
                                                                                                                                                                                                       482
                                                                                                                                                                                                                                                                         437
                                                                                                                                                                                                                                                                                                           489
                                                                                                                                                                                                                                                                                                                                             377
                                                                                                                                                                                                                                                                                                                                                                                                                                                  382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17 LNEEEIRKSVEVLKRQLN---LDAKVVK-----FFSVELKEPKKQEYLEWRNNKNIKIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44 LSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAR 103
                                                       VDEDLVIWYTLGVEHVVRIEDWP---VMPVEMAGFRLIPDGFFDKNPTIYLPRQLRING
                                                                                                                                                                                                                                                                                                                                      GKSEVRRNRRLVVSFWATLANYDYGFFWYFYQDGSIEFLVKLTGIINDDSISEKDPTPKY
                                                                                                                                                                                                                                                                                                                                                                                                        GNYDLYNCDCFGEVIYHLDVTRVSSNGTPIKIKKAICVHEEDFGVLWR--HTDLRS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVIYDVRYIDENNRERMILYRASVVDLMVPYGDPSPFHNKKMVLDAGDYGLGNFIVPLSH
                                                                                           AGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRG
                                                                                                                        LPDDSYVRRRGAYINYHLWYTPYNEEERYASGDY-----PYLRANDGLPKYILKKRSI 594
                                                                                                                                                                                                NPVGNAFFAEENLLENEADARRHVNPQTGRYWKIVNIQKKNYLGLPVAYRLVPGHNVLPP
                                                                                                                                                                                                                                                                                                  GNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRK
                                                                                                                                                                                                                                                                                                                                                                 GLAET----VLVVRSMSTLLNYDYVWDTVFHPSGAIBIRFYATGYISSAFLF--GATGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                       G-----VDC-PYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIFDVRFQGER-----LVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHH 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EALAIVFFGROPOPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDOM 163
                                                                                                                                                          LPQNSSMARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSD-----FINNETI
                                                                                                                                                                                                                                                                  GTRVTPEVYAPIHIHFFNIRLNINVDGLRNRIY------EVNLRGEPITEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KSPVPPGPA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -SPLPLQDANYTPEKLGKIFGDDLKPIEIRQPLSSSIKINGWEISWYRWRLRIGYTPREG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VDEELRGRRVAIG-YMW-VKKDIEDNGYGRPVHGLMPWVDLDKMEVIRIDDHGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VRNDKRVQEA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ESL-VKYYNFQDR-KVYEAII-----SLDNNVVKEIRSIDAAY--PPITLDEFGECEKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative 103;
                                                                                                                                                                                                                                -LLEMEEQAAFLVGSATPRYLYLAS-NHSNKWGHPRGYRIQMLSFAGEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9.2%; Score 368.5; DB 2;
24.4%; Pred. No. 4.1e-21;
ative 103; Mismatches 303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----LTKRGILINDLNL---LMVDCWAPG----H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels 137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      llard, G.; Awayez, M.J.; Cha
X.; Thi-Ngoc, H.P.; Redder,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               660
                                                           650
                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                    548
                                                                                                                                                                                                                                                                                                                                        436
                                                                                                                                                                                                                                                                                                                                                                        488
                                                                                                                                                                                                                                                                                                                                                                                                                                           434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                283
                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                            376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chan
```

```
밁
                                                                                                        Š
                                                                                                                                                                                 S
                                                                                                                                               B
                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Residues: 1-648 <ZHA>
A;Cross-references: GB:L12990; NID:g289152; PIDN:AAA22074.1;
C;Superfamily: amine oxidase (copper-containing)
C;Keywords: oxidoreductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amine oxidase (copper-containing) (EC 1.4.3.6) - Arthrobacter sp. (strain P: C;Species: Arthrobacter sp. C;Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 29-Sep-1999 C;Accession: A48646 R;Zhang, X.; Fuller, J.H.; McIntire, W.S. J. Bacteriol. 175, 5617-5627, 1993 A;Title: Cloning, sequencing, expression, and regulation of the structural (h.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Reference number: A48646; MUID:93374858; PMID:8366046 A;Accession: A48646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: preliminary; not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hylotroph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 24.0
177; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                         305
626 LNLPTSTSTTQTGEADTC
                                                                                                           650
                                                                                                                                                                                   599
                                                                                                                                                                                                                     469
                                                                                                                                               520
                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                             417
                                                                                                                                                                                                                                                                                                                                 483
                                                                                                                                                                                                                                                                                                                                                                   357
                                                                                                                                                                                                                                                                                                                                                                                                       430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   109
                                  698 FYSADSIYFRGDQDAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96
                                                                                                                                                                                                                                                                                                                                                                                                                                       YNIGNMANSLTLGCDCLGEIKYFDGHSVDSHGNPWTIENAICMHEEDDSI------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LWTFSFGLGAFSGPRIFDVRFQGE----RLVYEISLQEALAIYGGNSPA-AMTTRYVDGG
                                                                                                        -----IAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                           NG-----IQLAA--RDDAYVSKRAQFARNNLWVTAYDRTERFAAGEYPNQATGAD
                                                                                                                                                                               NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD----FSDFINNET---
                                                                                                                                                                                                                   GTAFMAVDRLLETEQKAIRKTNEAKHRFWKIANHESKNLVNEPVAYRL-----IPT
                                                                                                                                                                                                                                                                                             GEKNPYGQSLNNDGLYAPIHQHMFNVRMDFELDGVKNAVYEVDMEY-----
                                                                                                                                                                                                                                                                                                                         GATGKYGNQVSEHTL-GTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL-
                                                                                                                                                                                                                                                                                                                                                               KHFDFREGTAETRRSRKLVISFIATVANYEYAFYWHLFLDGSIEFLVKATGILSTAGQLP
                                                                                                                                                                                                                                                                                                                                                                                          SH--YFGGLAET----VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSA-FLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DWSFRVGFTPREGLVLHQLKFKDQGVDRPVINRASLSEMVVPYGDTAPVQAKKNAFDSGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VLIPDNGTGGSWSLKSPVPPGPAPPLQFY-------PQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GEDNEGRRL--MRALVFVRDEADDSPYAHPIENFIVFY-------DLNAG--KV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NISGAGFFLHYGLELLVNHKALD-PARWTIQK--VFYQGRYYDSLAQLEAQFEAGLVNV 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRA---TWFGLYY 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAGVAVAREADAVLV--DRAQARSFEAVVD-----LEAGTVDSWKLLAENIQPPFMLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GVSHPLDPLSRVEIARAVAILKE--GPAAAESFR-----FISVELREPSKDDL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLD
                                                                     DGLHIWTQKDRNIVDTDLVVWYTFGMHHVVRLEDWP--VMPRQNIGFMLEPHGFFNQNPT
                                                                                                                                                                                                                                            -QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIQMLSFAGEPLPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VRLEDDQA-----IPVPSARGNYLPKYVGEARTDLKPLNITQPEGASFTVTGNHVTWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EFAECEDAC--RKDPE------VIAALAKRGLTNLDLVCFEPWSVGYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQ 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9.1%; Score 363; DB 2;
24.0%; Pred. No. 1.1e-20;
tive 96; Mismatches 301
                                   715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PID:g289153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     164;
                                                                                                                                                                                                                                                                                         -PEHNPT
                                                                                                                                                                                                                                                                                                                                                                                                                                     F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                     625
                                                                                                        697
                                                                                                                                          567
                                                                                                                                                                                 649
                                                                                                                                                                                                                   519
                                                                                                                                                                                                                                                                                         468
                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                               416
                                                                                                                                                                                                                                                                                                                                                                                                 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95
                                                                                                                                                                                                                                                                                                                                                                                                                                     356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31,
```

```
C;Accession: T48139
R;Bevan, M.; Peters, S.A.; van Staveren, M.; Dirkse, W.; Stiekema, W.; Bancroft, submitted to the Protein Sequence Database, June 1999
A;Reference number: Z24485
A;Accession: T48139
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         copper amine oxidase-like protein - Arabidopsis thaliana
N;Alternate names: protein T4C9.130
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 20-Apr-2000 #sequence_revision 20-Apr-2000 #text_change 02-Sep-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Map position: 4
A;Introns: 460/3; 498/3; 686/2
A;Note: T4C9.130
C;Superfamily: amine oxidase (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Molecule type: DNA
A;Residues: 1-756 <BEV>
A;Cross-references: EMBL:AL080318
A;Experimental source: cultivar Columbia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                           유
                                                                                                                                                          õ
                                                                                                                                                                                                밁
                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                      Ŷ
                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                      밁
                                                                                   ٥
و
                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Superfamily: amine oxidase (copper-containing)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
                                                                                                                                                                                                   515
                                                                                                                                                                                                                                                                                                                                             409
                                                                                                                                                                                                                                                                                                                                                                                                                    349
                                                                                                                                                                                                                                                                                                                                                                                                                                                      329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185 RVSGYPMMTIEEMNDITV-----VPFSNAD------FNRTIIS------
                  648
                                                                                                                                                                                                                                       489
                                                                                                                                                                                                                                                                                                          429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HALHTVVLEEPEK-NLVRHWEKGNPLPPRKASVIARVGADTHVLTVDISTGRVDSENSPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCVFSVELOLPPKAAALAHLDRGSPPPAREALAI------VFFGRQPQPNVSE 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPV
                                                                                                                                                                                                   KNQVEKDKDGNEEELHGTLLSENVIGVIHDHYVTFYLDLDVDGPDN----SFVKVNLKR
                                                                                                                                                                                                                                                                                                                                                                               GVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQN------QGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                  VISRVRVHDPDTHETRDVMYKGFVSELFVPYMDPSDAWYFKTYMDAGEYGFGLQAMPLVP
                                                                                                                                                                                                                                                                                                                                                                                                                                         RIFDVR-----FQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----RGVNLTDVICFP--ISCG----WFGNKEENARVIKSQCFMTQGTPNFYMRPIEGLT 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FYKHRGRNLVTMTTAPRGLQSGDRATWFG------LYYNISGAGFFLHHV-GLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LVVG-PLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
                                                                                                                                                                                                                                       GNQV---
                                                                                                                                                                                                                                                                                                                                             LNDCPRNAAYMDGVFAAADGTPFVRENMVCIFESYAGDIGWRHSESPITGIPIREVR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PGSTNTDYRFQKLATTDKTRPLNPISIEQPRGPSFVIEDNHLVKWANWEFHLKPDPRAGV 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPG-----PAPPLQF-YPQGPRFSVQGSRVAS-SLWTFSFGLGAFSGP
ETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFR
                                                                                                                           QETEPGESPRKSYLKAVRNIAKTEKDGQIKLSLYDPSEFHVINSGKTTRVGNPTGYKVVP
                                                                                                                                                              PWSPEHQLQR---LQVTRKLLEMEEQAAFLVGSATP-RYLYLASNHSNKWGHPRGYRIQM
                                                                                                                                                                                                                                                                                                      YSHYFGGLAETVLYVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKY 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ILID---LDTKQ------IPI
                                                    RTTAASLLDHDDPPQKRGAFTNNQIWVTPYNKSEQWAGGLFTYQSHGDDTLAVWSD--RD
                                                                                       LSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD-FSDFINN
                                                                                                                                                                                                                                                                          ----PKVTLVVRMAASVGNYDYIIDYEFQTDGLIKAKVGLSGIL---MVKGTTYQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8.9%;
                                                                                                                                                                                                                        --SEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    %; Score 357.5; DB 2;
%; Pred. No. 3.8e-20;
100; Mismatches 280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BAC clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels 191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 756;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    288
                                                                                                                                                                    588
                                                                                                                                                                                                                                         532
                                                                                                                                                                                                                                                                              514
                                                                                                                                                                                                                                                                                                                                                   465
                                                                                                                                                                                                                                                                                                                                                                                     428
                                                                                                                                                                                                                                                                                                                                                                                                                        408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 328
                                                                                             647
                                                                                                                                629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Η.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mev
```

8 밁

350 235 299 201

NVSDTGFKILGNRVKWANWKFHVGFTARAGVTISTASVLDPRTKRFR--RVMYRGHVSET

-PQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDV-----RFQGERLVYEISLQEA 349

-----IPDK-EGNDFRTKH-----RPFPFFC

234

-SMQVIKYSDRFRKP-----

LAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRD

408 292

S 밁 Ş В Š 밁

466 353 409 293

밁

IRVGVDLTGVLEVKATSYTSNDQI--TENVYGTLVAKNTIAVNHDHYLTYYLDLDVDGNG

469

411

IEI-----RFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLE

NWVWAEDMVFVPMA-VPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSN

NSLVKAKLKTVRVTEVNKTSSRRKSYWTVVKETAKTEADGRVRLGSDPVELLIVNPNKKT

-QNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQND

VMCVFEKN-GYGASFRHTEINVPGQVITSGEAEISLVVRMVATLGNYDYIVDWEFKKNGA AFCVFEONOGLPLRRHHSDLY---SHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGA 465 FVPYMDPTYEWYYRTFMDIGEFGFGRSAVNLQPLIDCPQNAAFLDGHVAGPDGTAQKMTN

õ 밁

KWGHPRGYRIQMLSFAGEPLP--

```
RESULT
G71412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R; Bevan, M.; Bancroft, I.; Bent, E.; Love, K.; Goodman, H.; Dean, C.; Bergkamp, P.; Wedler, H.; Wedler, E.; Wambutt, R.; Weitzenegger, T.; Pohl, T.M.; Terryn, avanagh, T.; Hempel, S.; Kotter, P.; Entian, K.D.; Rieger, M.; Schaeffer, M.; Fu Nature 391, 485-488, 1998
A; Authors: Mueller-Auer, S.; Silvey, M.; James, R.; Montfort, A.; Pons, A.; Puig erhoft, A.; Moores, T.; Jones, J.D.G.; Eneva, T.; Palme, K.; Benes, V.; Rechman, C.; Ch.L.; Moores, T.; Jones, J.D.G.; Eneva, T.; Palme, K.; Benes, V.; Rechman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Title: Analysis of 1.9 Mb of contiguous sequence from chromosome 4 of Arabidopsi: A;Reference number: A71400; MUID:98121113; PMID:9461215
A;Accession: G71412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        probable amine oxidase - Arabidopsis thaliana C;Species: Arabidopsis thaliana (mouse-ear cr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: GB:Z97337; NID:g2244829; PID:g2244851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-650 <BEV>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Status: preliminary; nucleic acid sequence not shown; translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C; Accession: G71412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Variety: columbia
C;Date: 03-Aug-1998 #sequence_revision 03-Aug-1998 #text_change 20-Jun-2000
                                                                                                                                                                                                                                                                       . 2
                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Superfamily: amine oxidase (copper-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C; Genetics:
Š
                                                   밁
                                                                                             ρ
                                                                                                                                              밁
                                                                                                                                                                                           20
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Map
                                                                                                                                                                                                                                                                                                                                       Query Match 8.8
Best Local Similarity 23.9
Matches 161; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                         position: 4COP9-4G3845
                                                      162
                                                                                                  181
                                                                                                                                                 102
                                                                                                                                                                                                136
                                                                                                                                                                                                                                                                                      80 VELQLPPKAAALAHL----DRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRD 135
                                                                                                                                                                                                                                            56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -EHDLPVCGVQSVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GDQDAGACEVNPLA 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RDIENKDIVVWYTLGFHHIPCQEDFPIMPTVSS--SFDLKPVNFFERNPILSAAPNF---
                                                                                                                                                                                                                                          LDLEEPNKSHVLQWLSPNPSKKPPPPRRRSFVVVRAGGQ----TYELII------D 101
WTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFY- 298
                                                 WYGE-----TTTRRELKA-----SCFYRDGSVNVFTRPIEGITVTID---VD---
                                                                                                  FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHV-GLELLVNHKALDPAR
                                                                                                                                              LTTSKIASSRIYTGHGFPSFTFIELFKASKLPLTYPPFKKSILDRSLNISEVSCIPFTVG
                                                                                                                                                                                           VTVER------HGGP----LPYHRRPVLFQEYLDIDQMIFNREL---PQASGLLHHCC
                                                                                                                                                                                                                                                                                                                                                                8.8%;
                                                                                                                                                                                                                                                                                                                                            96;
                                                                                                                                                                                                                                                                                                                                          Score 353.5; DB 2;
Pred. No. 6.3e-20;
6; Mismatches 278;
                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      not
                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              742
                                                                                                                                                      161
                                                                                                                                                                                                       180
                                                             200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A.; Puigdor
Rechman, S
                                                                                                                                                                                                                                                                                                                                                    29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 7
```

QY 519 WVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NK 577	Qy 460 FHPSGAIEIRFYATGYYI-SSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLEN 518 :	Qy 400 SQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTV 459 :	QY 345 SLQEALAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDCPYLATYVDWHFLLE 399	QY 290 GPAPPLQFYPQGPRFSVQ-GSRVASSLWTFSFGLGAFSGPRIFDVRFQ-GERLVYEI 344	QY 230 VNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPP 289 : :	QY 174 GLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWEGLYYNISGAGFFLHHVGLELL 229	QY 141 HGGPLPYHRRPVLFQEYLDIDQMIFN	OY 87 KAAALAHLDRGSPPPAREALAIVFFGROPQPNVSELVVGPLPHPSYMRDVTVER 140	Query Match 8.5%; Score 340; DB 2; Length 638; Best Local Similarity 23.7%; Pred. No. 7.4e-19; Matches 157; Conservative 100; Mismatches 274; Indels 132; Gaps 28;	Db 530 KIGNTVGYRLIPEHLQATSLITDDDYPELRAGYTKYPWWTNYDRSE 576 Qy 634 PWAPTVDFSDFINNETIACKDLVAWVTAGFLHIPHAEDINTVTVGNGV 682
QY 588 MLSFAGEPLPQNSSMARGFSWERRYQLAVTQRKEEEPSSSSVFNQNDPWAPTV 639	Oy 531AVPWSPEHOLORLOVTRKLLEMEEQAAFLYGSATDRYLYLASNHSNKWGHPRGYRIQ 587	Qy 484 ATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPM 530	Qy 433 FGGLAETVLVVRSMSTLLNYDYVWDTVFHDSGAIEIRFYATGYISSAFLFG 483	Qy 373 GKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHY 432	Oy 320 FGLGAFSGPRIFDV-RFGGERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGM 372	QY 263 EAGLVNVVLIPD-NGTGGSWSLKSPVPPGPAPPLQFYPQGPRFSVQGSRVASSLWTFS 319 Sinch Sin	Oy 215SGAGFFLHHV-GLELLVNHKALDPARWTIQKVEYQGRYYDSLAQLEAQF 262 : : : : : :	QY 158 LDIDOMIFURELPQASGLLHHCCFYKHRGRULVTMTTAPRGLQSGDRATWFGLYYNI 214 : :	Query Match 8.1%; Score 325.5; DB 2; Length 674; Best Local Similarity 24.1%; Pred. No. 1.1e-17; Matches 146; Conservative 85; Mismatches 233; Indels 141; Gaps 30;	Ob 449 RVEEEDVVRQTMGPGNERGNAFSRKRTVLTRESEAVREADARTGRTWIISNPESKNR 505 Oy 578 WGHPRGYRIOMLSFAGEPLPONSSMARGFSWERVQLAVTORKEEEPSSSSVF-NOND 633 Db 506 LNEPVOYKLHAHNOPTILADPGSSIARRAAFATKDLWTRYADDERYPTGDFVNOHS 562 OY 634 PWAPTVDESDFINNETIAGKDLAWVTAGFLHIPHAEDIPTVTVGNOVGFFLRPYNEFD 693

Оу 548	The state of the Kind of the state of the st
מט	Db 423 YDYTFDWEFOWDGVIRVTVAASGMLWVKGTAYENVEDLGEKEDDSGPLISENVIGVVHDH 482
	Qy 452 YDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTH 503
	Db 367 SPEGIPILQPNMICLFERYAGDTSWRHSEILLPGVDIRESRAKVTLVARMACSVGN 422
Db 404	QY 398 LESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLN 451
ОУ 444	AGEFGLGPSSMPLVPLNDCPRNAYYIDGFFA
pb 352	Qy 351 AI-YGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVDCPYLATYVDWHFL 397
0у 393	Db 253 NPMSMEQPDGPSFQVEDGYLVKWANWKFHIKPDQRAGMIISQATVRDSKTGEAR 306
Db 292	VRFQGERLVYEISLQEAL :
	Db 219IKÍVDNGPVPVPKSTGTEYRYGFLNETVYMDRV 252
	QY 250 RYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQF 297
0у 282	Db 181 EEGRRVIKIQCFSKQDTVNFYMRPIEGLYLTVDMDKLE 218
Best Lo Matches	QY 191 TMTTAPRGLQSGDRATWEGLYYNISGAGFELHHV-GLELLVNHKALDPARWTIQKVFYQG 249
Ouerv M	Db 135 LTMKDIIAVSQVPYKSVEFNRSIEARGIP-FSGLICITPFAGWYGPD 180
F;382,467 F;412/Mod	QY 133MRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLV 190
F;26-674/ F;156,389	Db 75 MALDEPDKQRVIRWKKGDRLPPRRAEILAMSNGESHVLTVDLKSGRVVSDLVNPTFGYPI 134
C; Keyword F; 1-25/Do	
C; Superfa	PGFGSGSTILHA
A; Residue	
A; Accessi A: Molecul	TO DISCUSSION OF THE PROPERTY
A; Referen	Query Match 8.1%; SCOTE 3.24; DB 2; Deligti 00/; Best Local Similarity 22.1%; Pred. No. 1.6e-17; Matches 168: Conservative 102; Mismatches 298; Indels 192; Gaps 31;
R; Janes,	onberrament), amining Ovinage (copper concession),
A; Residue A; Cross-r	ine ovidase
A; Status: A; Molecul	A; Map position: 3 A; Introns: 145/3; 303/1; 402/3; 440/3; 591/3; 624/2
A; Accessi	() - min - m / min - m / min - m
A;Title: (A;Referen	A:Fronzianntal gource: Cultivar Columbia: BAC clone F23N14
R;Tipping J. Biol. (A; Molecule type: DNA A: Residues: 1-687 < SHO
C; Accession	A;Accession: T47403 A;Status: preliminary
C; Species	In Sequence Database, March
C44239	
DEC. 11.13	C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 20-Apr-2000 #sequence_revision 20-Apr-2000 #text_change 21-Jul-2000
Db 646	amine oxidase-like protein - Arabidopsis thallana N;Alternate names: protein F23N14.50
0у 668	
Db 597	
Оу 620	Db 653 FERNP 657
Db 539	Qy 692 FDEDP 696
Qy 561	Db 595 DHSRGDDTLAVWTKQNREIVNKDIVNWHVVGIHHVPAQEDFPIMPLLSTSFELRPTNF 652
Db 483	AWVTAGEL
Qy 504	Db 551 IPAIPAHPLLFEDDYPQIRG-AFTNYNVWVTAYNRTEKWAGGLYV 594

```
.ng, A.J.; McPherson, M.J.
.chem. 270, 16939-16946, 1995
.cloning and molecular analysis of the pea seedling copper amine oxidase.
.nce number: A57327; MUID:95348126; PMID:7622512
.preliminary
.preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        references: GB:L39931; NID:g685197; PID:g685198
S.M.; Palcic, M.M.; Scaman, C.H.; Smith, A.J.; Brown, D.E.; Dooley, D.M.; Istry 31, 12147-12154, 1992
Identification of topaquinone and its consensus sequence in copper amine (since number: A44239; MUID:93090748; PMID:1457410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8 HAEDIPHTVTVGNGVGFFLRPYNFFDEDP----SFYSAD 702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          limental source: seedling
flamily: amine oxidase (copper-containing)
fdamily: amine oxidase (copper-containing)
rds: copper; glycoprotein; metalloprotein; oxidoreductase; quinoprotein; top
comain: signal sequence *status predicted <SIG>
comain: signal sequence *status predicted <SIG>
comain: signal sequence (copper-containing) *status predicted <MAT>
sp.783/Binding site: carbohydrate (Asn) (covalent) *status predicted
57,469/Binding site: copper (His) *status predicted
copper (His) *status experimental
                                                                                                                                                                                                                                                     44 RSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGK-----YGNQVSE 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      idase (copper-containing) (EC 1.4.3.6) precursor - garden pea
s: Pisum sativum (garden pea)
31-Dec-1993 #sequence_revision 05-Jan-1996 #text_change 17-Mar-2000
ion: A57327; C44239
   8
                                                                                                                                                                                                                                                                                                                   52 DTYVHSANGTPILLKNAICVFEQ------YGNIMWRHTENGIPNESIEESRTEVNLIV 403
                                                                                                                                                                                                                                                                                                                                                                               33 DWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGL-----AETVLVV 443
                                                                                                                                                                                                                                                                                                                                                                                                                                              12 KHKSRRVLYKGYISELFVPYQDPTEEFYFKTFFDSGEFGFGLSTVSLIPNRDCPPHAQFI 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34 RFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVDCPYLATYV 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 SKQSP-PFGPKQHSLTSHQPQGPGFQINGHSVSWANWKFHIGFDVRAGIVISLASIYDLE 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Match
ocal Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 le type: mRNA
es: 1-674 <TIP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            le type: protein
es: 409-417,'X',419 <JAN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CQEDFPVMPTIAS--SFELKPVNFFESNPVLGISPFFEKD 683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EEEPSSSSVFNQNDPWA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SLYDPYEFHLVNPNRLSRLGNPAGYKLVPGGNAASLLDHDDPPQMRGAFTNNQIWVTR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FISFHLDMDIDGSAN----NSFVKVHLEKQRLPPGESRRKSYLKVKKYVAKTEKDAQIKM 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQR----LQVTRKLLEMEEQAAFLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GSATPRYLYLAS-NHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERYQLAVTQRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ------YNRSEQWAGGLLMYQSRGEDTLQVWSD--RDRSIENKDIVLWYTLGFHHVP
                                                                                                                       HTLGTVHTHSAHEKVDLDVAGLENWVWAEDMVFVPM-----AVPWSPEHQLQRLQVTR 547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SLKSPVPPGPAPP--LQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSG-----PRIFDV- 333
                                                                                                                                                                                                RTIVTVGNYDNVIDWEFKASGSIKPSIALSGILE---IKGTNIKHKDEIKEDLHGKLVSA 460
KLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPL-----PQNSS 601
                                                              NSIGIYHDHFYIYYLDFDIDGTHNSFEKTSLKTVRIKDGSSKRKSYWTTETQTAK----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8.0%; Score 320; DB 2;
25.8%; Pred. No. 3.2e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66; Mismatches 189; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----PTVD-FSDFINNETIAGKDLVAWVTAGFLHIP 667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 674;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20;
```

Sear	Db	Qy	Дb	Qy	B
ch con time :	615	652	568	602	516
Search completed: May 20, 2003, 12:05:04 Job time : 23 secs	615 NKDIVMWHVVGIHHVPAQEDFPIMPLLSTSFELRPTNFFERNP 657	652 GKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDP 696	568 -IRG-AFTNYNVWVTAYNRTEKWAGGLYVDHSRGDDTLAVWTKQNREIV 614	602 MARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIA 651	516TESDAKITIGLAPAELVVVNPNIKTAVGNEVGYRL-IPAIPAHPLLTEDDYPQ 567

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
     Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-081-408-2_COPY_20_763
4010
1 LVCVLLYGRGGDGGEPSQLP......QAAACAPDLPAFSHGGFSHN 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      May 20, 2003, 11:41:09; Search time 17 Seconds (without alignments) 1815.199 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   112892 seqs, 41476328 residues
      SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length DB
      AACC2_HUMAN
AABP_RAT
AABP_HUMAN
AACC3_RAT
AMO_ECOLI
AMO_ECOLI
AMO_EARTS0
AMO_LARTS0
AMO_LARTGO
AMO_LENCU
PICAN
AMO_LENCU
AMO_LENCU
AMO_LENCU
AMO_LENCU
AMO_LENCU
AMO_LENCU
AMO_LENCU
AMO_LENCU
AMO_LENCU
AMO_LENCU
AMO_BEAJA
DVLZ_HUMAN
COXN_BRAJA
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
DVLZ_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AOC3_HUMAN
AOC3_MOUSE
AOCY_BOVIN
AOCX_BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       112892
               p36633 rattus norv
p19801 homo sapien
008590 rattus norv
p49250 klebsiella
p46883 escherichia
059118 arthrobacte
007121 arthrobacte
007123 arthrobacte
043077 pisum sativ
p49252 lens culina
012556 aspergillus
p12807 pichia angu
09pdf6 xylella fas
p12807 pichia angu
09pdf6 xylella fas
p12250 homo sapien
p38000 bradyrhizob
060838 mus musculu
046837 escherichia
054804 mus musculu
p32004 homo sapien
014641 homo sapien
014641 homo sapien
014641 homo sapien
014641 homo sapien
014641 homo sapien
015393 homo sapien
015393 homo sapien
015393 homo sapien
015393 homo sapien
015393 homo sapien
015393 homo sapien
015393 homo sapien
015393 homo sapien
015394 berpes simp
015394 herpes simp
015394 herpes simp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q16853 homo sapien
O70423 mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Description
herpes simp
thermus the
arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             homo sapien
```

45	44	43	42	41	40	39	38	37	36	35	34
93	93	93.5	94	94	94	94.5	94.5	94.5	95	95.5	95.5
2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4
958	697	878	716	716	492	2555	1522	901	2258	2175	985
_	_	_	_	1	_	-	\vdash	٢	Н	Ъ	1
MML1_MYCTU	YN26_MYCTU	FIMD_ECOLI	DVL3_MOUSE	DVL3_HUMAN	SYYM_YEAST	PPS3_BACSU	PST1_SCHPO	VEF_GVPU	FA5_PIG	POLG_BOVEV	AGLU_ASPNG
P95211 mycobacteri				Q92997 homo sapien					Q9glpl sus scrofa		

ALIGNMENTS

ន្តនន្តន្តន្តន្ត	នួននួន	888888	888888	RC RA RT RL	RP RT RT RP RP RT RP RT RP RT RP RP RP RP RP RP RP RP RP RP RP RP RP	R00000		AC AC
ht. It is produced through a collaborati Bioinformatics and the EMBL outstation itute. There are no restrictions on it say it it it is in no we say it it is in no we care moved. Usage by and for commerci ement (See http://www.isb-sib.ch/announcsib.ch).	-!- PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity)!- PTM: N- AND O-GLYCOSYLATED!- SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.	-!- COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit!- SUBUNIT: HOMODIMER!- SUBCELLULAR LOCATION: Type II membrane protein!- TISSUE SPECIFICITY: MOST STRONGLY EXPRESSED ON THE HIGH ENDOTHELIAL VENULES OF PERIPHERAL LYMPH NODES AND ON HEPATIC ENDOTHELIAL VENULES OF PERIPHERAL LYMPH NODES AND ON HEPATIC	-:- FUNCTION: CELL ADHESION PROTEIN THAT PARTICIPATE IN LYMPHOCYTE RECIRCOLLATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO PERIPHERAL LYMPH NODE VASCULAR ENDOTHELIAL CELLS IN AN L-SELECTIN- INDEPENDENT FASHION. HAS A MONOAMINE OXIDASE ACTIVITY:- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO + NH(3) + H(2)O(2).	TISSUE=Lung; MEDLINE=98317014; PubMed=9653080; Smith D.J., Salmi M., Bono P., Hellman J., Leu T., Jalkanen S.; "Cloning of vascular adhesion protein 1 reveals a novel multifunctional adhesion molecule."; J. Exp. Med. 188:17-27(1998).	SEQUENCE FROM N.A. TISSUE-Placenta; MEDLINE-97128319; PubMed-8972912; Zhang X., McIntire W.S.; "Cloning and sequencing of a copper-containing, topaquinone-containing monoamine oxidase from human placenta."; Gene 179:279-286(1996). [2] SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.	AUC3 OR VAP1. HOMO Sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. NCBI_TaxID=9606; [1]	01-NOV-1997 (Rel. 35, Created) 01-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Membrane copper amine oxidase (EC 1.4.3.6) (Vascular adhesion protein- 1) (VAP-1) (HPAO).	RESULT 1 AOC3.HUMAN ID AOC3.HUMAN STANDARD; PRT; 763 AA. AC .01683;

```
SQ TITITITI TO CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE POR CORRESPONDENTE PO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
δÃ
                                           밁
                                                                            δ
                                                                                                                          β
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                               Ω
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 744;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDING
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF01179; Cu_amine_oxid; 1.

Pfam; PF02727; Cu_amine_oxidN2; 1.

Pfam; PF02728; Cu_amine_oxidN3; 1.

Pfam; PF02728; Cu_amine_oxidN3; 1.

PRINTS; PR00766; CUDAOXIDASE

PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01165; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01165; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01165; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01165; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.

PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.

Signal-anchor; Cell adhesion; Polymorphism; Metal-binding.

Signal-anchor; Cell adhesion; Polymorphism; Metal-binding.

DOMAIN

1

5

CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; AF067406; AAC25170.1; Genew; HGNC:550; AOC3.
MIM; 603735; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARIANT
                                           500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     140
  541
                                                                                     481
                                                                                                                               440
                                                                                                                                                                    421
                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                               320
                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                              260
                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 200
                                                                                                                                                                                                              380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LYCYLLYGRGGDGGEPSQLPHCPSYSPSAQPWTHPGQSQLFADLSREELTAYMRFLTQRL
                                       GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                                                                                                                                                                                    MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLP
                                                                                                                                                                                                                                                                                                                       GPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FYKHRGRNLVTMTTAPRGLOSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
  QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                               GPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FYKHRGRNLVTMTTAPRGLOSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
                                                                                                                                                                                                              MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       520
520
520
522
532
532
532
532
542
5592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 763
471
520
522
684
673
137
232
294
618
618
618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84621 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COPPER (POTENTIAL).

COPPER (POTENTIAL).

COPPER (POTENTIAL).

AMILORIDE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EXTRACELLULAR (POTENTIAL)
TOPAQUINONE (BY SIMILARIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIGNAL-ANCHOR (TYPE-II MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            58AD55605EC9D228 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KED (GLCNAC...) (PO)
KED (GLCNAC...) (PO)
KED (GLCNAC...) (PO)
KED (GLCNAC...) (PO)
KED (GLCNAC...) (PO)
KED (GLCNAC...) (PO)
KED (GLCNAC...) (PO)
KED (GLCNAC...) (PO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .1e-307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
)(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROTEIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79
                                                                                 540
                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                               379
                                                                                                                                                                                                                                                                                                                                         360
  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
RESULT
AOC3_M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                           EMBL; AF054831; AAC23747.1; -.
EMBL; AF078705; AAC35839.1; -.
MGD; MGI:1306797; Acc3
InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid(); 1.
Pfam; PF02728; Cu_amine_oxid(); 1.
Pfam; PF02728; Cu_amine_oxid(); 1.
PRINTS; PR00766; CUDAOXIDASE.
PRINTS; PR00766; CUDAOXIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LT 2
                                                                                                                                                                                                                                                                                                                                                                 AOC3_MOUSE
070423;
PROSITE: PS01164: COPPER_AMINE_OXID_1: 1.
PROSITE: PS01165: COPPER_AMINE_OXID_2: 1.
Oxidoreductase: Copper: TPQ: Glycoprotein: Transmembrane: Signal-anchor: Cell adhesion: Metal-binding.
DOMAIN 1 6 CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                          ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bono P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-BALB/c, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=10090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-JUL-1999 (Rel.
15-JUL-1999 (Rel.
15-JUN-2002 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-98414290; PubMed-9743358;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            560
                                                                                                                                                                                titles requires a license agreement (See http://www.isb-sib.ch/announce/send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (VAP-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         musculus (Mouse)
                                                                                                                                                                                                                                                                                      PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). PTM: N- AND O-GLYCOSYLATED (BY SIMILARITY). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                            SUBCELLULAR LOCATION: Type II membrane protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SMARGESWERYQLAVTQRKEEEPSSSSVENQNDPWAPTVDFSDFINNETIAGKDLVAWVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACLPQAAACAPDLPAFSHGGFSHN 763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OR VAP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACLPQAAACAPDLPAFSHGGFSHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              copper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Salmi M., Smith D.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and 129/SvJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          38,
41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence update)
Last annotation update)
oxidase (EC 1.4.3.6) (V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Leppanen I., Horelli-Kuitunen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Vascular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  adhesion
                                                                                                                                                                                                                                                                                                                                                                                                                             AN L-SELECTIN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   660
```

```
Š
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                        δ
                                                                                밁
                                                                                                δ
                                                                                                                        밁
                                                                                                                                           Ş
                                                                                                                                                                   밁
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query
Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     METAL
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                          560
                                                                                                                                               541
                                                                                                                                                                    500
                                                                                                                                                                                          481
                                                                                                                                                                                                             440
                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                               320
                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                        260
                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                 200
                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                         140
                                                           661
                                                                                620
                                                                                                     109
                                                                                                                                                                                                                                                      380
740
                  721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Match
Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 LVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL
                                                                                                                                                                                                                                                                                                                                     GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                              QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNS
                                                                                                                                                                             LFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL
                                                                                                                                                                                                                      LRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVMDTVEHPSGAIEIRFYATGYISSAF
                                                                                                                                                                                                                                                                                                          GPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAA 360
                                                                                                                                                                                                                                                                                                                                                                                         FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
                                                                                                                                                                                                                                                                                                                                                                                                                                   ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GPGLVDAAQARPSDNCVFSVELQLPAKAAALAHLDRGGPPPVREALAIIFFGGQPKPNVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVCVLLAGRSGDGGGLSQPLHCPSVLPSVQPRTHPSQSQPFADLSPEELTAVMSFLTKHL
                                                                                                                        MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLP
                                                                                                                                                                                                                                                                                              GPRFSVQGSQVSSSLWAFSFGLGAFSGPRIFDIRFQGERVAYEISVQEAIALYGGNSPAS
                                                                                                                                                                                                                                                                                                                                                                                FYKHQGQNLLTMTTAPRGLQSGDRATWFGLYYNLSGAGFYPHPIGLELLIDHKALDPALW
         ACLPQAAACAPDLPAFSHGGFSH
                                     AGFLHIPHAEDIPNTYTYGNGYGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPL 720
                                                                                                                                                                  FFGAGEKFGNRVGAHTLGTVHTHSAHFKVDLDVAGLKNWAWAEDMAFVPTIVPWQPEYQM
                                                                                                                                                                                                            LRRHHSDFYSHYFGGVVGTVLVVRSVSTLLNYDYIWDMVFHPNGAIEVKFHATGYISSAF
                                                                                                                                                                                                                                                     MSTCYVDGSFGIGKYSTPLIRGVDCPYLATYVDWHFLLESQAPKTLRDAFCVFEQNQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                         ELVVGPLPHPSYMRDVTVERHGGPLPYYRRPVLDREYQDIEEMIFHRELPQASGLLHHCC
ACLSQTATCAPEIPAFSHGGFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      al Similarity
618; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         765
520
520
522
684
673
137
232
232
592
659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               84533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               84.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 3404; DB 1;
Pred. No. 1.3e-259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
                  743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIGNAL-ANCHOR (TYPE-II MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 765;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROTEIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                               679
                                                                                                   660
                                                                                                                                             600
                                                                                                                                                                                       540
                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                     439
                                                                                                                                                                                                                                                                                               379
                                                                                                                                                                                                                                                                                                                                       319
                                                                                                                                                                                                                                                                                                                                                                                                                         199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                        619
                                                                                                                                                                                                            499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
Query Match
Best Local S
Matches 619
                                                                                                                                                                                                                                                                                                                                                                             InterPro: IPRO00269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidW3; 1.
Pfam; PF02728; Cu_amine_oxidW3; 1.
Pfam; PF02728; Cu_amine_oxidW3; 1.
PRINTS; PR00766; CUDAOXIDASE.
PROSITE; PS01164; COPPER_AMINE_OXID_PROSITE; PS01165; COPPER_AMINE_OXID_PROSITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AOCY_BOVIN
046406;
15-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-UN-2002 (Rel. 41, Last annotation update)
15-UN-2002 (Rel. 41, Last annotation update)
Copper amine oxidase, lung isozyme precursor (EC 1.4
oxidase [copper-containing]) (BOLAO).
Bos taurus (Bovine).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pec
Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _BOVIN
                                                                                         BINDING
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                   MOD_RES
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-Lung;
MEDLINE-98151264;
                                                                                                                                                                                                                                                                                                                                           SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hogdall
                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; Y15774; CAA75776.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             H(2)O(2).
-!- COFACTOR: Binds 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eur. J. Biochem. 251:320-328(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              copper amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Structure and tissue-specific expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -1- CATALYTIC ACTIVITY: RCH(2)NH(2) +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBCELLULAR LOCATION: Extracellular (By similarity).
TISSUE SPECIFICITY: LUNG, SPLEEN, HEART, KIDNEY.
PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity).
SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  similarity).
ENZYME REGULATION:
(BY SIMILARITY).
          al Similarity
619; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E.V.S.,
                                                                                           470
519
521
521
672
136
136
231
231
293
617
762
            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              oxidases
                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                          Copper;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Houen
                                                                                                                                                                                                                                                                                                                                                                                  COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                     COPPER_AMINE_OXID_1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed-9492300;
                                                                                                                  762
470
519
521
683
672
136
231
231
665
                                                                                             84883
                             83.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             copper ion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INHIBITED
                                                                                             ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Borre
          44;
                                                                                       N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
Score 3343; DB 1;
Pred. No. 8.1e-255;
4; Mismatches 75;
                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                              COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILARITY)
                                                                                                                                                                                                                                                                                               COPPER AMINE OXIDASE, LUNG I TOPAQUINONE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                         Glycoprotein; POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BY AMILORIDE IN A COMPETITIVE MANNER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bundgaard J.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    H(2)0 + 0(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of,
                                                                                                                                                                                                                                                                                                                                                               Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genes
                                                                                             CRC64;
                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pa; Euteleostomi;
Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.4.3
            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               per subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 encoding
                                                                                                            (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Larsson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RCHO +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Amine
            10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      bovine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (By
            Gaps
            2
```

B 8

12

4 VLLYGR--GGDGGE-----PSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVM

53 71

LLVMGREEGGVGSEEGVGKQCHPSLPPRCPSRSPSDQPWTHPDQSQLFADLSREELTAVM

```
RESULT 4

ACCX_BOVIN

ID ACCX_B

AC Q29437

DT 01-NOV

DT 15-JUN

DE COPPER

DE Oxida

OX BOS ta

OX BOVIda

OX BOVIda

OX BOVIda

OX BOULT

RN [1]

RP SEQUEN

RC TISSUE

RX MEDLIN

RA MULLI

RA BULLI

RA B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                    029437;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
01-NOV-1997 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Copper amine oxidase, liver isozyme precursor (EC 1.4.3.6)
Copper amine oxidase, (SAO).
                    Mu D., Medzihradszky K.F., Adams G.W., Burlingame A.L., Smith A.J., Cai D., K. "Primary structures for a mammalian ceioxidase.";
J. Biol. Chem. 269:9926-9932(1994).
                                                                                                                                                                                                                                                               Bos taurus (Bovine)
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eute
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora;
Bovidae; Bovinae; Bos.
                                                                                                                                            MEDLINE=94193686; PubMed=8144587;
                                                                                                                                                                   TISSUE-Liver;
                                                                                                                                                                                        SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AOCX_BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLLHHCCEYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACEVNPLACLPQAAACAPDLPAFSHGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGGPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GVLHHCCSYKQGGGNLVTMTTAPPGLQSGDRATWFGLYYNISKAGYYLHPVGLELLVDHK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RPLPQNSSTERAISWGRYQLAVTQRKETEPSSSSVFNQNDPWTPTVDFADFINNETIAGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WSPEHQIQRLQVIRKQLETEEQAAFPLGGGSPRYLYLASKQSNKWGHPRGYRIQTVSFAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GYISSAFFFGTAQKYGNQVRENTLGTVHTHSAHYKVDLDVGGLENWVWAEDMAFVPTTVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLQFHPQGTRFSVQGSRVTSSLWTFSFGLGAFSGPRIFDIRFQGERLAYEISLQEAVAIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALDPAQWTIQKVFFQGRYYESLVQLEEQFEAGRVNVVVIPNNGTGGSWSLKSQVPPGPTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SFLTQKLGPDLVDAAQARPSDNCIFSVELQLPPKAAALAHLDRRSPPPAREALAIVFFGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                             AND
                                                                                                                                                                                          PARTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         741
                                                                     cellular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  762
                                                                  , Mayer P.,
Klinman J.P.
ellular and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ξ
                                                                     serum
                                                                                                                   Hines
                                                                                                                                                                                                                                                                                                             Euteleostomi;
                                                                                                                   Σ
                                                                  copper
                                                                                                                                                                                                                                                                                           Bovoidea;
                                                                     amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                191
```

```
Š
                         밁
                                           Š
                                                                          B
                                                                                                 δÃ
                                                                                                                              В
                                                                                                                                                     δÃ
                                                                                                                                                                                밁
                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                        γ
                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 609
                                                                                                                                                                                                                                                                                                                                                     BINDING
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-slb.ch/announce/or send an email to license@isb-slb.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PARTIAL SEQUENCE.

MEDLINE-93090748; PubMed-1457410;

Janes S.M., Palcic M.M., Scaman C.

Dooley D.M., Mure M., Klinman J.P.

"Identification of topaquinone and amine oxidases.";
                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
MOD_RES
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     [2]
PARTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Biochemistry 31:12147-12154(1992).
-:- CATALYTIC ACTIVITY: RCH(2)NH(2) +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
OXIGOREDUCTASE; Copper; TPQ; Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PRINTS; PR00766; CUDAOXIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR000269; CuNH_oxidase.
                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIGNAL
                                                                             192
                                                                                                                              132
                                                   234
                                                                                                    174
                                                                                                                                                        114
                                                                                                                                                                                  72
                                                                                                                                                                                                          54
                                                                                                                                                                                                                                    12
                                                                                                                                                                                                                                                  4 VLLYGR--GGDGGE------PSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENZYME REGULATION: INHIBITED BY AMILORIDE IN A COMPETITIVE MAI
SUBCELLULAR LOCATION: Extracellular.
TISSUE SPECIFICITY: LIVER.
PTM: Topagqinone (TPQ) is generated by copper-dependent
autoxidation of a specific tyrosyl residue (By similarity).
autoxidation of a specific tyrosyl residue (By similarity).
SIMILARITY: BELONGS TO THE COPPER/TOPAGUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             H(2)0(2).

COFACTOR: Binds 1 copper ion
COFACTOR: BINDS 1 INHIBITED
                                                                                           GLLHHCCFYKHRGRNLYTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHK
                                                                                                                              QPQPNVTELVVGPLPQPSYMRDVTVERHGGPLPYYRRPVLLREYLDIDQMIFNRELPQAA
                                                                                                                                          QPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQAS
                                                                                                                                                                               LLVMGREEGGVGSEEGVGKQCHPSLPPRCPSRSPSDQPWTHPDQSQLFADLSREELTTVM
 PLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIY
                                        ALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAP
                                                                             GVLHHCCSYKQGGQKLLTMNSAPRGVQSGDRSTWFGIYYNITKGGPYLHPVGLELLVDHK
                                                                                                                                                                                                                                                                                      609;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S69583; AAB30397.1;
L27218; AAA30525.1;
                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                         170
519
521
521
521
521
521
531
531
531
                                                                                                                                                                                                                                                                                                                                                      16
762
470
519
521
521
683
672
136
                                                                                                                                                                                                                                                                                                  83.1%;
                                                                                                                                                                                                                                                                                                                                           ¥.
                                                                                                                                                                                                                                                                                     59; Mismatches
                                                                                                                                                                                                                                                                                                                                                   COPPER AMINE OXIDASE, LIVER
TOPAQUINONE (BY SIMILARITY)
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
AMILORIDE (BY SIMILARITY).
N-LINKED (GLCNAC...) (POT
N-LINKED (GLCNAC...) (POT
                                                                                                                                                                                                                                                                                     Score 3331; DB 1;
Pred. No. 7.1e-254;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                                                                          AA959771360295FE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and 1 topaquinone BY AMILORIDE IN A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . H . ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H(2)0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Smith A.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 consensus
                                                                                                                                                                                                                                                                                                                                                                                                                                                (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence
                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Brown
                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    per subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
                                                                                                                                                                                                                                                                                                                                                                                                                                                            LIVER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Metal-binding
                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RCHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           U
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ISOZYME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MANNER
                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                            53
                                                   293
                                                                            251
                                                                                                                               191
                                                                                                                                                        173
                                                                                                                                                                                                                                                                                     N
```

```
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                     expression, Genomics 40: [2]
                                                                                                                                                                                                                                                                                                                                                ACC2_HUMAN STANDARD; PRT; 756 AA 075106; 075105; 000120; 09UNYO; 15-JUL-1999 (Rel. 38, Created) 15-JUL-1999 (Rel. 41, Last sequence update) 15-JUL-2002 (Rel. 41, Last annotation update Retina-specific copper amine oxidase precur (Amine oxidase (copper-containing)).
                                                                                                                             SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
MEDLINE-98390194; PubMed-9722954;
Imamura Y., Noda S., Mashima Y., Kudoh J., Oguchi Y., Shimizu
"Human retina-specific amine oxidase: genomic structure of the
(AOC2), alternatively spliced variant, and mRNA expression in
                                                                                                                                                                                           MEDLINE-97237047; PubMed-9119395; Imamura Y., Kubota R., Wang Y., Asakawa S., Oguchi Y., Shimizu N.; "Human retina-specific amine oxidase (RAO): expression, and chromosomal mapping."; Genomics 40:277-283(1997).
                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa;
Mammalia; Eutheria;
                    Zhang X., McIntire W.S.;
"Human copper-containing amine oxidases.";
Submitted (JUL-1998) to the EMBL/GenBank/DDBJ
-i- FUNCTION: MAY BE A CRITICAL MODULATOR OF STRING, POSSIBLY BY DEGRADING THE BIOGENIC
                                                                           TISSUE-Retina;
                                                                                                                     (AOC2), alternatively spliced
retina.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       312
                                                                                     SEQUENCE FROM N.A.
                                                                                                          Genomics 51:293-298(1998).
                                                                                                                                                                                                                                                               TISSUE-Retina;
                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   354
 HISTAMINE,
CATALYTIC A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGNSPAAMTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DLVAMVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSIYFRGDQDAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGNTPAAMLTRYMDSGFGMGYFATPLIRGVDCPYLATYMDWHFVVESQTPKTLHDAFCVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WSPEHQIQRLQVTRKQLETEEQAAFPLGGASPRYLYLASKQSNKWGHPRGYRIQTVSFAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDQEPSMDSADSIYFREGQDAG
                                                                                                                                                                                                                                                                                                                              (Human)
 ACTIVITY: RCH(2)
                                                                                                                                                                                                                                                                                                         Chordata;
Primates;
RCH(2)NH(2)
                                                                                                                                                                                                                                                                                                         Craniata; Vertebrata;
Catarrhini; Hominidae;
  +
                                                                                                                                                                                                                                                                                                                                                           n update)
 H(2)0
                      ank/DDBJ databases.

ATOR OF SIGNAL TRANSMISSION
BIOGENIC AMINES DOPAMINE,
                                                                                                                                                                                                                                          Kudoh
                                                                                                                                                                                                                    CDNA
 0(2)
                                                                                                                                                                                                                                                                                                                                                             Se
Se
                                                                                                                                                                                                                    cloning,
                                                                                                                                                                                                                                        J.,
                                                                                                                                                                                                                                                                                                                                                             1.4.3
                                                                                                                                                                                                                                                                                                                    Euteleostomi;
 RCHO
                                                                                                                                                                                                                                                                                                           Ното
                                                                                                                                                                                                                                          Mashima
                                                                                                                                                                                                                                                                                                                                                             6
                                                                                                                                                                                                                    tissue
                                                                                                                              the gene
 NH(3)
                                                                                                                                                     z
                                 H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                533
```

Ş

136 181

240

253

180 194

-FNYNGSTLAAVHATPRGLRSRERTTWMALYHNISGVGLFLHPVGLELLLDHRALDPAHW

ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC

ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLRAEFTQMWRHLKDVELPKAPIFLSST-

밁

195

οy

121

В

```
STUTE TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT TO THE TENT 
                                     Qy
日
                                                                                     ₽
                                                                                                                                 δÃ
                                                                                                                                                                                  Matches
                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                     CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
VARSPLIC
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
MOD_RES
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF01179; Cu_amine_oxid: 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PRINTS; PR00766; CUDAOXIDAEE.
PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genew; HGNC:549; AOC2.
MIM; 602268; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR000269; CuNH_oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BINDING
                                                                                                                                                                                                  Local
  76
                                         61
                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               H(2)O(2).

COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit. COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit. ALTERNATIVE PRODUCTS: AT LEAST 2 ISOFORMS: A LONG FORM (SHOWN HERE) AND A SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING. TISSUE SPECIFICITY: RETINAL-SPECIFIC.

PIM: Topaquinone (IPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity).

SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                               1 LVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     L; AB012943; BAA32590.1; AB012942; BAA32590.1; JBAB012943; BAA32589.1; AB012942; BAA32589.1; AB012942; BAA32589.1; JB8213; BAA19001.1; JB8213; BAA19001.1; JB8213; AA039345.1; AF081363; AA039345.1;
                    GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS
                                                                                     LAYVLLTSPGGS----SQPPHCPSVSHRAQPWPHPGQSQLFADLSREELTAVMRFLTQRL
GPGLVDAAQAQPSDNCIFSVELQLPPKAAALAHLDRGSPPPAREALAIVLFGGQPQPNVS
                                                                                                                                                                                485;
                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Metal-binding
                                                                                                                                                                                                                                                   33
465
518
518
680
669
133
198
226
588
226
588
226
519
215
215
215
221
                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Copper;
                                                                                                                                                                                                    64.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TPQ;
                                                                                                                                                                                  88;
                                                                                                                                                                                                                                                                 N-LINKED (GLCNAC...) (POT
N-LINKED (GLCNAC...) (POT
N-LINKED (GLCNAC...) (POT
N-LINKED (GLCNAC...) (POT
N-LINKED (GLCNAC...) (POT
MISSING (IN SHORT ISOFORM).
D -> E (IN REF. 3).
TRENT -> GDRA (IN REF. 3).
MA -> IG (IN REF. 1).
MA -> IG (IN REF. 3).
MA -> H (IN REF. 3).
MA -> G (IN REF. 3).
MA -> G (IN REF. 3).
MA -> G (IN REF. 3).
                                                                                                                                                                                Score 2565; DE
Pred. No. 1.1e-
88; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RETINA-SPECIFIC COPPER AMINE TOPAQUINONE (BY SIMILARITY). COPPER (POTENTIAL). COPPER (POTENTIAL). COPPER (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alternative splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMILORIDE (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                  GLCNAC...) (POTEL
D (GLCNAC...) (POTEL
                                                                                                                                                                                                  ; DB 1;
1.1e-193;
                                                                                                                                                                                                                         Length
                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ) (POTENTIAL).
) (POTENTIAL).
) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OXIDASE
                                                                                                                                                                                8
                                                                                                                                                                                Gaps
                                              120
                                                                                        75
                                                                                                                                        60
  135
                                                                                                                                                                                    ω
```

Š

241

300

```
RESULT 6
    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                        01-JUN-1994 (Rel. 29, Created)
01-JUN-1994 (Rel. 29, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Amiloride-sensitive amine oxidase [copper-containing] precursor (EC 1.4.3.6) (Diamite oxidase) (DAO) (Amiloride-binding protein
                                                                                                                                                                                                                                                                                                                                                                     ABP_RAT
P36633;
                                                                                                                                                                      STRAIN-Wistar; TISSUE-Colon, and L
MEDLINE-93387321; PubMed-8375402;
Lingueglia E., Renard S., Voilley
Lazdunski M., Barbry P.;
                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                   forms
                                                                                                                                                                Molecu
                                                                                                                                                                                                                                                                                                 ABP) (Histaminase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          314
                                                                                                                                                                                                                                                                                                                                                                                                                                       734
                                                                                                                                                                                                                                                                                                                                                                                                                                                           719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      254
                  SUBUNIT: HOMODIMER: DISULFIDE-LINKED.
SUBCELLULAR LOCATION: Extracellular.
SUBCELLULAR LOCATION: Extracellular.
PTM: Topaquinone (TPQ) is generated by copper-dependent
autoxidation of a specific tyrosyl residue (By similarity).
SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                           H(2)0(2).
H(2)0(2).
COPACTOR: Binds 1 copper ion and 1 to COPACTOR: HOMODIMER; DISULFIDE-LINKED.
                                                                                                      CATALYTIC ACTIVITY:
                                                                                                                            FUNCTION: CATALYZES THE DEGRADATION
                                                                                                                   PUTRESCINE OR HISTAMINE
    SWISS-PROT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PVACLPDLAACVPDLPPFSYHGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLACLPQAAACAPDLPAFSHGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFINNETIAGKDLVAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WLQRPQLTRQVLGKEDLTAFSLGSPLPRYLYLASNQTNAWGHQRGYRIQIHSPLGIQIPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LFGATG--KYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MTTRYVDGGFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GSQYSVQGNLVVSSLWSFTFGHGVFSGLRIFDVRFQGERIAYEVSVQECVSIYGADSPKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ESDMERALSWGRYQLVVTQRKEEESQSSSIYHQNDIWTPTVTFADFINNETLLGEDLVAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TVQQVFYLGHYYADLGQLEREFKSGRLEVVRVPLPPPNGASSLRSRNSPGPLPPLQFSPQ
                                                                                                                                                    9
                                                                                                                                       lar cloning and functional expression f rat amiloride-binding proteins."; Biochem. 216:679-687(1993).
                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
   entry
   is
                                                                                                      RCH(2)NH(2) +
  copyright.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           741
                                                                                                                                                                                                                                                  Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                         Lung;
                                                                                                                                                                              N., Waldmann R.,
  Ιt
                                                                                                                                                                                                                                                                                                                                                                              746
                                                                                                    H(2)0
                                                                             topaquinone
                                                                                                                            ဝှု
                                                                                                                                                                                                                                                                                                                                                                              ⋛
                                                                                                                           COMPOUNDS
                                                                                                      +
                                                                                                                                                            of.
                                                                                                    0(2)
                                                                                                                                                             different
                                                                                                      .
through a
                                                                                                                                                                                 Chassande
                                                                              per
                                                                                                    RCHO +
                                                                              subunit
                                                                                                                                                                                                                                                                                                            protein)
                                                                                                                                                            molecular
                                                                                                    NH(3)
  collaboration
                                                                                                                                                                                   0
                                                                                                                                                                                                                                                    Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     313
```

```
δÔ
                           В
                                                õ
                                                                             밁
                                                                                                    δÃ
                                                                                                                                                       δÃ
                                                                                                                                                                                     В
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                 밁
                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BINDING
BINDING
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PF1NTTS; PR007766; CUDAOXIDASE.
PROSTITE; PS01164; COPPER_AMINE_OXID_1;
PROSTITE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as socient is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; X73911; CAA52116.1; -.
EMBL; X73912; CAA52117.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR; S34656; S34656
PIR; S36847; S36847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Metal-binding
  492
                            436
                                                                                                        375
                                                                                                                                  316
                                                                                                                                                            315
                                                                                                                                                                                     261
                                                                                                                                                                                                               270
                                                                                                                                                                                                                                        203
                                                                                                                                                                                                                                                                 210
                                                                                                                                                                                                                                                                                           148
                                                                                                                                                                                                                                                                                                                     157
                                                                                                                                                                                                                                                                                                                                               68
                                                                                                                                                                                                                                                                                                                                                                        97
                                                                                                                                                                                                                                                                                                                                                                                                                           37
                                                                                                                                                                                                                                                                                                                                                                                                  29
                                                                                                                                                                                                                                                                                                                                                                                                             YFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGATGKYGNQ 491
                                                                                                   YTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYS---H
                                                                                                                                                LWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAMTTRYVDGGFGNGK 374
                                                                                                                                                                                                                                                                                         Y----DLLYH-TLKRATMPLHQFFLDTTGFSFLGCDDRCLTFTDVAPRGVASGQRRSWFI
                                                                                                                                                                                                                                                                                                                                                              GSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQE 156
VSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLE
                          FYAGLKGYVLVLRTTSTVYNYDYIWDFIFYSNGVMEAKMHATGYVHATFYTPEGLRHGTR
                                                                                                                                 GWSFSYRLRSSSGLQIFNVLFGGERVAYEVSVQEAVALYGGHTPAGMQTKYIDVGWGLGS
                                                                                                                                                                                    VVLEDPLPNGTE-----KPPLFSSYKPRGEFHTPVNVAGPHVVQPSGPRYKLEGNTVLYG
                                                                                                                                                                                                                                                                                                                                            GRKGPNREARAVIFFGAQDYPNVTEFAVGPLPRPYYIRALS-PRPGHHLSWSSRPISTAE
                                                                                                                                                                                                                                                                                                                                                                                              KARVFADLSPQEIKAVHSFLMNREELGLQPSKEPTLAKNSVFLIEMLLPKKKHVLKFLDE 88
                                                                           VTHELAPGIDCPETATFLDAFHYYDSDGPVHYPHALCLFEMPTGVPLRRHFNSNFKGGFN
                                                                                                                                                                                                              VLIPD---
                                                                                                                                                                                                                                       VQRYVE--GYFLHPTGLEILLDHGSTDVQDWRVEQLWYNGKFYNNPEELARKYAVGEVDT
                                                                                                                                                                                                                                                               LYYNISGAGFFLHHVGLELLVNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNV 269
                                                                                                                                                                                                                                                                                                                  YLDIDQMIFNRELPQASGLLHH------CCFYKHRGRNLVTMTTAPRGLQSGDRATWFG 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  505
505
507
563
563
110
269
533
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                      NGTGGSWSLKSPV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               456
505
507
670
670
570
570
570
570
570
570
570
570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     740
85021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 34
40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMILORIDE (POTENTIAL).

N-LINKED (GLCNAC. ..) (PO'
N-LINKED (GLCNAC. ..) (PO'
N-LINKED (GLCNAC. ..) (PO'
N-LINKED (GLCNAC. ..) (PO'
N-LINKED (GLCNAC. ..) (PO'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPAQUINONE (BY SIMILARITY COPPER (POTENTIAL). COPPER (POTENTIAL). COPPER (POTENTIAL). HEPARIN (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 1398.5;
Pred. No. 5.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AMILORIDE-SENSITIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COPPER-CONTAINING
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copper;
                                                                                                                                                                                                            PPGPAPPLQFYPQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                .2e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
-102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AMINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
(POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                             435
                                                                                                       431
                                                                                                                                 375
                                                                                                                                                                                                                                                                                           202
                                                                                                                                                                                                                                                                                                                                                                                                                         96
                                                                                                                                                                                                                                       260
                                                                                                                                                                                                                                                                                                                                            147
                                                                                                                                                                                                                                                                                                                                                                                                                                                 13;
```

=

```
RESULT DE RESULT DE RESULT DE LE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE-Placenta;
MEDLINE-96113540; PubMed-8595053;
Zhang X., Kim J., McIntire W.S.;
"CDNA sequences of variant forms of human Biochem. Genet. 33:261-268(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-94237856; PubMed-8182053; Chassande O., Renard S., Barbry P., Lazdungki M.; Chassande O., Renard S., Barbry P., Lazdungki M.; "The human gene for diamine oxidase, an amiloride binding projection of the Molecular cloning, sequencing, and characterization of the J. Biol. Chem. 269:14484-14489(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABP_HUMAN STANDARD; PRT; 751 AA.
P19801; Q16683; Q16684; -
01-FEB-1991 (Rel. 17, Created)
01-JUN-1994 (Rel. 29, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Amiloride-sensitive amine oxidase [copper-containing] precursor (EC 1.4.3.6) (Diamine oxidase) (DAO) (Amiloride-binding protein)
                                                                                                                                                                                                                   MEDLINE-94193685; PubMed-8144586;
Novotny W.F., Chassande O., Baker M., Lazdunski M., Barbry P.;
"Diamine oxidase is the amiloride-binding protein and is inhibited amiloride analogues.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Human kidney amiloride-binding protein: cDNA structure and expression.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-Kidney;
MEDLINE-91017502; PubMed-2217167;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                           TISSUE-Placenta
                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 20-39,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lazdunski M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lingueglia E., Maes P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Barbry P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY SEQUENCE FROM N.A., AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  496
                                                BIOL. Chem. 269:9921-9925(1994).

- FUNCTION: CATALYZES THE DEGRADATION OF COMPOUNDS UTTRESCINE, HISTAMINE, SPERMINE, AND SPERMIDINE, INVOLVED IN ALLERGIC AND IMMUNE RESPONSES, CELL FISSUE DIFFERENTIATION, TUMOR FORMATION, AND POSS PLACENTAL DAO IS THOUGHT TO PLAY A ROLE IN THE RE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QEHQAAFREGQTLPKYLLFSSPQKNCWGHRRSYRLQIHSMAEQVLPPGWQEERAVTWARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OR DAO1 OR AOC1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DIPNTYTYGNGYGFFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLPQAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFLHIPHAE 670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPLPQNSSMARGFSWERY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DVPNTATPGNSVGFLLRPFNFFPEDPSLASRDTVIV-WPQDKGLNRVQ--RWIPEDRRCL 732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLAVTKYRESERYSSSLYNQNDPWDPPVVFEEFLRNNENIEDEDLVAWVTVGFLHIPHSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LQTHLLGNIHTHLVHYRVDMDVAGTKNSFQTLTMKLENLTNPWSPSHSLVQPTLEQTQYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VS-PPFSYNG 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PDLPAFSHGG 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (Histaminase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Champe
                                                                                                                                                                                                                                                                                                                                                                                                                        Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3
                                                                                                                                                                                                                                                                                                                                                                                                                     Sci.
                                                                                                                                                                                                                                                                                                                                                                  AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chassande O., ., Frelin C.,
                                                                                                                                                                                                                                                                                                                                                                  CHARACTERIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                  U.S.A.
  RCH(2)NH(2) +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Craniata; Vertebrata; | Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                  87:7347-7351(1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tartar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Munemitsu
Tartar A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PARTIAL
  H(2)0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      placenta
     +
                                  AND P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S., Cham
Ullrich
  0(2)
                                                                                  CELL PROLIFERATION, ND POSSIBLY APOPTOSIS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Champigny rich A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        diamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Euteleostomi;
                                                                                                                                      SUCH AS
SUBSTANCES
  RCHO + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein.
e promoter.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        oxidase.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>ه</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      functional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  555
                                                                                                                                                                                                                                                     γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \\ \pi \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle
                                                                                                                                                                     망
                                                         밁
                                                                                                         õ
                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                               20
  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MIM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genew;
                                                         142
  204
                                                                                                            151
                                                                                                                                                                     83
                                                                                                                                                                                                                      91
                                                                                                                                                                                                                                                                                                                                     3
                                                                                                                                                                                                                                                                               23
RATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARWT IQKVFYQGRYYDSLAQLEAQFE
                                                                                                         PVLFQEYLDIDQMIFNRELPQASGLLHH----
                                                                                                                                                                                                                      LAHLDRGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRR
                                                      PISTAEY----ALLYHTLQEATKPLHQFFLNTTGFSFQDCHDRCLAFTDVAPRGVASGQ
                                                                                                                                                                  LRFLDKGERHPVREARAVIFFGDQEHPNVTEFAVGPLPGPCYMRALS-PRPGYQSSWASR
                                                                                                                                                                                                                                                                            PGTLPRKAGVFSDLSNQELKAVHSFLWSKKELRLQPSSTTTMAKNTVFLIEMLLPKKYHV
```

```
H(2)O(2).

C -!- COFACTOR: Binds 1 copper ion and 1 to ...

-!- SUBUNIT: HOMODIMER; DISULFIDE-1.TWE--
-!- SUBCELLULAR LOCATION.
                                                Query Match
Best Local S
Matches 293
                                                                                                                                                        CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 METAL
MOD_RES
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PRINTS; PF00766; CUDAOXIDASE,
PROSITE; PS01164; COPPER_AMINE_OXID_1;
PROSITE; PS01165; COPPER_AMINE_OXID_2;
Signal; Glycoprotein; Oxidoreductase; Cignal; Clycoprotein; Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company, Company
                                                                                                                                                                                                                                                                                                                                            CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                   BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entropean Bioinformatics Institute. There are no restructe by non-profit institutions as long as its content modified and this statement is not removed. Usage by and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PIR; A38276; A38276.
PIR; S42495; S42495.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; X78212; CAA55046.1;
EMBL; U11862; AAC50270.1;
EMBL; U11863; AAB60381.1;
EMBL; M55602; AAA58358.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue.
-!- SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                               VARIANT
                                                                                                                                                                                                                                                                                                                VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lternative splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: HOMODIMER; DISULFIDE-LINKED.
SUBCELLULAR LOCATION: Extracellular
TISSUE SPECIFICITY: PLACENTA AND KIDNEY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               104610;
PWTHPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HGNC:80; ABP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    s requires a license agreement ($
an email to license@isb-sib.ch).
                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IPR000269; CuNH_oxidase.
                                                                                                                                                        28
332
751 AA;
                                                                                                                                                                                                                                                                                                              391
461
510
512
675
568
568
110
110
1168
538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                        28
332
85363
                                                                                                                                                                                                                                                                                                              391
510
512
675
575
575
575
575
575
575
110
110
1168
538
                                                                                                                                                                                                                                                             645
                                                                      34.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Polymorphism; Metal-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALT_SEQ
                                                                                                                                                           ¥.
                                                      124;
                                           Score 1394; DI
Pred. No. 1.2e
24; Mismatches
                                                                                                                                                                                                                                                                                                                                 AMILORIDE (POTENTIAL).
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                                                                                                              /FTId-VAR_007542
R -> A (IN REF. 4
S -> F (IN REF. 4
                                                                                                                                                                                                                                                          DAO2)
                                                                                                                                                                                                                                                             Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPAQUINONE.
COPPER (POTENTIAL).
COPPER (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COPPER (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COPPER (POTENTIAL).
HEPARIN (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMILORIDE-SENSITIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COPPER-CONTAINING
                                                                                                                                                           1B8B6695C44232DA
                                                                                                                                                                                A (IN REF. 4).
F (IN REF. 2).
                                                                                                                                                                                                                                                               Ö
                                                                                                                                                                                                                                                                                                                RTEGGOPRALSQARSPVPGR (IN ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Copper;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        topaquinone
                                                                      DB 1;
L.2e-101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Heparin-binding;
                                                                                                                                                           CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMINE
                                                                                                    Length
                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        per subunit
                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                restrictions
tent is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a collaboration -
                                                   38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for
                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       in no way
90
                                                      11
```

----CCFYKHRGRNLVTMTTAPRGLQSGD

203 141 150

82

196

```
RESULT 8
                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
SEQUENCE OF TISUE-Adipocyte;

TISUE-Adipocyte;

MEDLINE-96010417; PubMed-8520629;

Jochen A., Guven S., Hays J.;

"The major integral membrane glycoprotein in adipocytes is a novel 200-kDa heterodiner.";

MOI. Membr. Biol. 12:277-281(1995).

MOI. Membr. Biol. 12:277-281(1995).

-I- FUNCTION: CELL ADHESION PROTEIN THAT PARTICIPATE IN LYMPHOCYTE RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATING THE BINDING OF LYMPHOCYTES TO RECIRCULATION BY MEDIATION BY MEDIATI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Cast annotation update)
Membrane copper amine oxidase (EC 1.4.3.6) (V
1) (VAP-1) (VP97) (Fragment).
Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                           J in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-Sprague-Dawley; TISSUE-Adipocyte; MEDLINE-97238878; PubMed-9083076;
                                                                                                                                                                                                                                                                                                                                                                                                                   Morris N.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                008590;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AOC3_RAT
                                                                                                                                                                                                                                                                                                                                                                                            Lienhard G.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   375
                                                                                                                                                                                                                                                                                                                      Membrane amine oxidase cloning and in the adipocyte plasma membrane."; Biol. Chem. 272:9388-9392(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GWGLGSVTHELAPGIDCPETATFLDTFHYYDADDPVHYPRALCLFEMPTGVPLRRHFNSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GFGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EDRDCSMP-PPFSYNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QAAACAPDLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FKGGFNFYAGLKGQVLVLRTTSTVYNYDYIWDFIFYPNGVMEAKMHATGYVHATFYTPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DGEVDVVVLEDPLPGGKGHDSTEEPPLFSSHKPRGDFPSPIHVSGPRLVQPHGPRFRLEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGLVNVVLIPDNGTGGSWSLKSPVPP-----GPAP-----PLQFYPQGPRFSVQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RRSWLIIQRYVE--GYFLHPTGLELLVDHGSTDAGHWAVEQVWYNGKFYGSPEELARKYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HIPHSEDIPNTATPGNSVGFLLRPFNFFPEDPSLASRDTVIV-WPRDNGPNYVQ--RWIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HIPHAEDIPNTVTVGNGVGEFLRPYNFFDEDPSFYSADSIYFRGDQDAGACEVNPLACLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ITWARYPLAVTKYRESELCSSSIYHQNDPWHPPVVFEQFLHNNENIENEDLVAWVTVGFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDFI-NNETIAGKDLVAWVTAGFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EQTQYSWERQAAFRFKRKLPKYLLFTSPQENPWGHKRSYRLQIHSMADQVLPPGWQEEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LRHGTRLHTHLIGNIHTHLVHYRVDLDVAGTKNSFQTLQMKLENITNPWSPRHRVVQPTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SRVASSLWTFSFGLGAFSGPRIFDVRFQGERLVYEISLQEALAIYGGNSPAAWTTRYVDG
                                                                                                                                                                                                                                                                                                                                                                                                              Ducret
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                            A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AND PARTIAL SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                746
                                                                                                                                                                                                                                                                                                                                                                                                              Aebersold R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata;
Sciurognathi; Muridae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                  identification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   321
                                                                                                                                                                                                                                                                                                                                                                                                              Ross
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ą
                                                                                                                                                                                                                                                                                                                                                                                                              S.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Vascular adhesion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                              Keller
                                                                                                                                                                                                                                                                                                                                                                  as a major protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Euteleostomi;
; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                                                              ഗ
                                                                                                                                                                                                                                                                                                                                                                                                              .
R
                                                                          L-SELECTIN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    254
```

```
RESULT 9
AMO_KLEAE
ID AMO_K
AC P4925
DT 01-FE
                                                                                                        Q
                                                                                                                                    밁
                                                                                                                                                        Ş
                                                                                                                                                                                   밁
                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                             . B
                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                   Matches
AMO_KLEAE
P49250;
01-FEB-1996
                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
CARBOHYD
CARBOHYD
CARBOHYD
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF02727; Cu_amine_oxidn2; 1.
Pfam; PF02728; Cu_amine_oxidn3; 1.
PRINTS; PR00768; CUDAOXIDASE.
PROSITE: PS01164; COPPER_AMINE_OXID_2;
PROSITE: PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oxidoreductase; Copper; TPQ; Glycoprotein; Signal-anchor; Cell adhesion; Metal-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <del>: :</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <del>: :</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NIT_MET
                                                                                     319
                                                                                                                                    259
                                                                                                                                                                                      199
                                                                                                           301
                                                                                                                                                           241
                                                                                                                                                                                                             181
                                                                                                                                                                                                                                     139
                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                     79
                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                   19
                                                                                                                                                                                                                                                                                                                                                          _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         autoxidation of a specific tyrosyl residue (By similarity). PTM: N- AND O-GLYCOSYLATED (BY SIMILARITY). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PTM: Topaquinone (TPQ) is g
autoxidation of a specific
PTM: N- AND O-GLYCOSYLATED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBCELLULAR LOCATION: Type II membrane PTM: Topaquinone (TPQ) is generated by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  H(2)O(2).
COFACTOR: Binds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INDEPENDENT FASHION. HAS A MONOAMINE OXIDASE ACTIVITY CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUBUNIT: HOMODIMER
                                                                                                           GPR
                                                                                                                                                                                                                                                                                                                                               LVCVLLVGRGGDGGEPSQLPHCPSVSPSAQPWTHPGQSQLFADLSREELTAVMRFLTQRL 60
                                                                                                                                                 TIQKVEYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPPGPAPPLQFYPQ 300
                                                                                                                                                                                                                                                ELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCC 180
                                                                                                                                                                                                                                                                                                GPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPAREALAIVFFGRQPQPNVS 120
                                                                                    GPR
                                                                                                                                                                                   TIQKVFYQGRYYESLTQLEDMFEAGLVNVVLVPDNGTGGSWSLKSSVPPGRAPPLQFHPE
                                                                                                                                                                                                          FYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKALDPARW
                                                                                                                                                                                                                                    ELVVGPLPHPSYMRDVTVERHGGPLPYYRRPVLTREYQDIQEMIFHRELPQASGLLHHCC
                                                                                                                                                                                                                                                                                    GPGLVDAAQARPSDNCVFSVELQLPAKAAALAHLDRGGPPPVREALAIIFFGGQPKPNVS
                                                                                                                                                                                                                                                                                                                                 LVCVLLAGRSGDGGRLSQPLHCPSVLPSVQPQTHSGQSQPFADLSPEELTAVMSFLIKHL 78
                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                            303
                                                                                     321
                                                                                                                                                                                                                                                                                                                                                                                                                               27
136
231
293
321
321
                                                                                                                                                                                                                                                                                                                                                                                 Conservative
 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                  A
A
                        STANDARD;
 33
'
                                                                                                                                                                                                                                                                                                                                                                                                                                            >321
136
231
293
321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26
                                                                                                                                                                                                                                                                                                                                                                                                                                35116 MW;
                                                                                                                                                                                                                                                                                                                                                                                             33.8%;
 Created)
                                                                                                                                                                                                                                                                                                                                                                                   18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                Score 1354; DB
Pred. No. 5e-99;
8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EXTRACELLULAR (POTENTIAL)
                         てスコ
                                                                                                                                                                                                                                                                                                                                                                                                                                  6B1F294253A1DE6F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -
                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC.)
(GLCNAC.)
                         755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PARTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PARTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 topaquinone
                         ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein.
copper-dependent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (TYPE-II
                                                                                                                                                                                                                                                                                                                                                                                                       1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
:
                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ) (POTENTIAL)
) (POTENTIAL)
) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   per
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEMBRANE PROTEIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RCHO +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  subunit.
                                                                                                                                                                                                                                                                                                                                                                                                         321;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a collaboration
                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NH(3)
                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                   138
                                                                                                                                                                                                          240
                                                                                                                                                                                   258
                                                                                                                                                                                                                                    198
```

0,

```
S
                                                   8
                                                                         ð
                                                                                                        밁
                                                                                                                               Ş
                                                                                                                                                            8
                                                                                                                                                                                  Q
                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                 ACT_SITE
MOD_RES
METAL
METAL
METAL
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SUBCELLULAR LOCATION: Periplasmic.
-!- INDUCTION: BY TYRAMINE AND CATECHOLANINES.
-!- PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity).
-!- SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         modified and this statement is not removed entities requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use, by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H(2)O(2).
-!- COFACTOR: Binds 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOPAMINE.
-I- CATALYTIC ACTIVITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sugino H., Sasaki M., Azakami H., Yamashita M., Murooka Y., "A monoamine-regulated Kiebsiella aerogenes operon containi monoamine oxidase structural gene (maoA) and the maoC gene. J. Bacteriol. 174:2485-2492(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-FEB-1996 (Rel. 33, Last 15-JUN-2002 (Rel. 41, Last Copper amine oxidase precur (Tyramine oxidase).
                                                                                                                                                                                                                                                                                                                                                             SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                      PROSITE; PS01164; COPPER_AMINE_OXID_1; PROSITE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; D10208; BAA01060.1; HSSP; P46883; 1OAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=92210491; PubMed=1556068;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=28451;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Klebsiella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Klebsiella aerogenes
                          174
                                                    191
                                                                                                         140
                                                                                                                                  56
                                                                                                                                                              82
                                                                                                                                                                                     14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION: ACTIVE ON TYRAMINE,
                                                                                                                                                                                    GEPSQLPHCPSVSPSAQPWT------HPGQSQLFA------DLSREELTAVMRF
                                                                                                                                LTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLDRGSPPPA-REALAIVFFGRQ
                                                                                                                                                           GKSLDLP-VPVVMKEGKAWVSDTFINDVFQSGLDQTFQVEKRPHPLNSLSAAEISKAVT-
                        GLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHK
                                                                          PQPNVSELVVGPLPHPSYMRDVTVE-RHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQAS
                                                   ·HVIEAVV-DLQNKKILSWTPIKGAHG-----MVLLDDFVSVQNII-
                                                                                                                                                                                                                            Similarity
                                                                                                        ---IVKAAPEFQPNTRFTEISLHEPDKAAVWAFALQGTPVDAPRTADVVMLDGK-
                                                                                                                                                                                                                                                                                  413
496
554
519
719
                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                              Copper;
                                                                                                                                                                                                                                                                                             755
413
496
554
556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AND
                                                                                                                                                                                                                            10.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 copper ion and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RCH(2)NH(2) + H(2)O +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                              101;
                                                                                                                                                                                                                                                                    W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence update;
annotation update
                                                                                                                                                                                                                                                                               COPPER AMINE OXIDASE.
CATALYTIC BASE (BY SIMILARITY
TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
                                                                                                                                                                                                                            Score 413; DB 1;
Pred. No. 1.5e-24;
                                                                                                                                                                                                                                                                                                                                                                       VE_OXID_1; 1.
VE_OXID_2; 1.
Periplasmic; Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (E)
                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                    7B5552283CD93EFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ဝှု
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRYPTAMINE,
NTSSEFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ion update)
1.4.3.6) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       http:
                                                                                                                                                                                                                284;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Monamine
                                                                                                                                                                                                                                                                                                                                   (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BETA-PHENETHYLAMINE
                                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       //www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                         Metal-binding
                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 per
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RCHO +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         oxidase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                              206;
EVLKKHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the
                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      commercia
                        233
                                                                             173
                                                                                                        190
                                                                                                                                                                                     55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AND
243
                                                                                                                                                                                                              32;
```

```
RESULT AMOUNT OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF THE COLOR OF T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P46883; P78153; O53008;
01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Copper amine oxidase precursor (EC 1.4
(2-phenylenthylamine oxidase).
TYNA OR MAOA OR B1386
                                                                                                                         Parsons M.R., Convery M.A., Wilmot C.M., Yadav Corner A.S., Phillips S.E.V., McPherson M.J., "Crystal structure of a quinoenzyme: copper an Escherichia coli at 2-A resolution.";
                                                                                                                                                                                                                           STRAIN=K12 / K10;
MEDLINE=96164434; PubMed=8591028;
                                                                                                                                                                                                                                                                                                                                                          "Nucleotide
Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                               Azakami H.,
Murooka Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. STRAIN=K12 / W3110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacteria; Proteobacteria;
STRAIN=K12 / MG1655;
MEDLINE=97426617; Pu
                                                    SEQUENCE FROM N.
                                                                                                    Structure 3:1171-1184(1995).
                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A., AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMO_ECOLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALDPARWTIQKV---FYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTHPAATGAKFAPDEWIYHRLSFMDKQLWVTRYHPTERYPEGKYPNRSAHDTGLGQYAK-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGPRTSTMQVNQYTIDSEQKAAQKFDPGTIR----LLSNTSKENRMGNPVSY--QIIPYAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TMHDPSAKEDTRYGTLIDHNIVGTTHQHIYNFRLDLDVDGENYTLVAMDPEVKPNT---A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                T------GKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KHLEMGKPNVSTERRELVVRWISTVGNYDYIFDWVFHDNGTIGIDAGATGIEAVKGVLAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SHYFGG-----LAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSAFLFGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YGMGTLTSPIVRGKDAPSNAVLLDETIADYTGKPTTIPGAVAIFE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NWDFHLRLNSRVGPILSTVTYNDNGTKRQVMYEGSLGGMIVPYGDPDVGWYFKAYLDSGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LWTFSFGLGAFSGPRIFDVRFQG----ERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VVDLEAKKIIKIEEGPVIPVPMEPRPYDGRDRNAPAVKPLEITEPEGKNYTITGDTIHWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ITDPGKVVTTPLTVGFFDGK--DGLQQ-----DARLLKVVSYLDTGDGNYWAHPIENLVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EPLPONSSMA-----RGFSWERYQLAVTQRKEEE-----PSSSSVFNONDPWAPT
                                                                                                                                                                                                                                                                                                                               Bioeng.
                                                                                                                                                                                                                                                                                                                                                          sequence of coli.";
                                                                                                                                                                                                                                                                                                                                                                                                                                    Yamashita
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DDESLINHDDVVWITTGTTHVARAEEWPIMPT--EWALALLKPWNFFDETPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
  PubMed-9278503;
                                                                                                                                                                                                                                                                                                                                  77:315-319(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----PVPPGPAP----
                                                                                                                                                                                                                                                                                                                                                                                                                                       .
.
                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY
                                                                                                                                                                                                                                                                                                                                                                                  the gene
                                                                                                                                                                                                                                                                                                                                                                                                                                    Roh J.-H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       quence update)
notation update)
r (EC 1.4.3.6) (T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           subdivision;
                                                                                                                                                                                                                                                                                                                                                                                  for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----PLQF-YPQGPRFSVQGSRVASS
                                                                                                                                                    copper amine oxidase
                                                                                                                                                                                                                                                                                                                                                                                  monoamine
                                                                                                                                                                                                                                                                                                                                                                                                                                       Suzuki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         757
                                                                                                                                                                                                      Yadav
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                       #
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Tyramine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Enterobacteriaceae;
                                                                                                                                                                                                                                                                                (2.0
                                                                                                                                                                                                                                                                                                                                                                                  oxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                       Kumagai
                                                                                                                                                                                                                                                                                  ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            oxidase)
                                                                                                                                                                                                        Blakeley
                                                                                                                                                                                                                                                                                                                                                                                  (maoA)
                                                                                                                                                                                                                                                                                                                                                                                                                                       ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -RYAGPEY
                                                                                                                                                         e
E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    356
```

```
Wilmot C.M., Murray J.M., Alton G., Pal
Blakeley V., Corner A.S., Palcic M.M.,
Phillips S.E.V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-97251357: PubMed-9097039:
Alba H., Baba T., Fujita K., Hayashi K., Inada T., Isono K
Itoh T., Kasai H., Kashimoto K., Kimura S., Kitakawa M.,
Kitagawa M., Makino K., Miki T., Mizobuchi K., Mori H., Mo
Motomura K., Nakade S., Nakamura Y., Nashimoto H., Nishio
Oshima T., Saito N., Sampei G., Seki Y., Sivasundaram S.,
Tagami H., Takeda J., Takemoto K., Takeuchi Y., Wada C.,
Yamamoto Y., Horiuchi T.;
"A 570-kb DNA sequence of the Escherichia coli K-12 genome
corresponding to the 28.0-40.1 min region on the linkage m
DNA Res. 3:363-377(1996).
                                                                                X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).

MEDLINE=99315198; PubMed=10387067;

Murray J.M., Saysell C.G., Wilmott C.M., Tam

Knowles P.F., Phillips S.E.V., McPherson M.

"The active site base controls cofactor rea
coli amine oxidase: X-ray crystallographic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 477-757 FROM N.A. STRAIN-W / ATCC 11105; MEDLINE-97263463; PubMed-9109378; METRAIN-W / Prieto M.A., Garcia J.L., "Molecular characterization of PadA, a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto M.A. a prieto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Blattner F.R., Plunkett G. III, Bloch C.A., Riley M., Collado-Vides J., Glasner J.D., R. Gregor J., Davis N.W., Kirkpatrick H.A., Go
                                                                                                                                                                                                                                              "Catalytic mechanism of the quin Escherichia coli: exploring the Biochemistry 36:1608-1620(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-97195795; PubMed-9043126; Hanlon S.P., Hill T.K., Flavell M. "2-phenylethylamine catabolism by organization and expression."; Microbiology 143:513-518(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "maoB, a gene that encodes a positive oxidase gene (maoA) in Escherichia col J. Bacteriol. 178:2941-2947(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Science
                                                                                                                                                                                                                                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
MEDLINE=97200715; PubMed=9048544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Yamashita M., Azakami H
Kumagai H., Murooka Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Catabolism of phenylacetic acid in E of a new aerobic hybrid pathway.";
J. Biol. Chem. 273:25974-25986(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Garcia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ferrandez
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-KI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 31-40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-96213037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 31-50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN-W / ATCC 11105;
MEDLINE-98421522; Pub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF 1-59 FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                            iochemistry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В.,
                                                                      amine oxidase:
ants.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complete genome sequence 102 1453-1474(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           J.L., Diaz E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Shao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Α.,
                                            38:8217-8227(1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minambres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed-8631685;
kami H., Yokoro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=9748275;
ambres B., Garcia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N.A.
(2.4 ANGSTROMS)
                                                                                                                                                                                                                                                                   quinoenzyme amine oxidase from the reductive half-reaction.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acid in Escherichia coli. Characterization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              z
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Escherichia coli K-12.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₿.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ive regulator
coli.";
                                                                                                                                                                                                                                                                                                                                   Parsons M.R., Cor
M., Knowles P.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Roh J.-H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Stringfellow J.M.,
herichia coli K-12:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Olivera
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                phenylacetaldehyde
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Diaz
                                                                                                                                 Tambyrajah
n M.J.;
                                                                                                            reactivity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Goeden M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               coli K-12 genome
on the linkage m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rode C.K., Mayhew G.F.,
                                                                                       studies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              E.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of the monoamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Suzuki
                                                                                                                                                                                                                                                                                                                                                             Convery
                                                                                       in Es
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Isono K.,
                                                                                                                                                      W.S.,
                                                                                                                                                                                                                                                                                                                                     McPherson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Luengo
                                                                                                            Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rose D.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ξ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mori T.,
                                                                                         mutational
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  map.";
                                                                                                                                                      Jaeger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cooper R.A.;
                                                                                                                                                                                                                                                                                                                                                             Z
                                                                                                                                                                                                                                                                                                                                       3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <
.
                                                                                                                                                      ۲,
```

```
A and th...

Les requires a requires a end an email to lic...

ABL; D23670; BAA04900.1; -..

EMBL; L47571; AAC37012.1; -..

EMBL; D90776; BAA14996.1; -..

EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; D90776; BAA14993.1; -..

DR EMBL; X97452; CAA66107.1; -..

DR PDB; 10AC; 03-APR-96.

DR PDB; 10AF; 23-AUG-99.

DR PDB; 10AF; 24-AUG-99.

DR PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-00

PDB; 1D60; 02-FEB-0
          CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIND
CA_BIN
     VARIANT
VARIANT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wilmot C.M., Hajdu J., McPherson M.J., Knowles P.F., "Visualization of dioxygen bound to copper during enz Science 286:1724-1728(1999).
-i- CATALYTIC ACTIVITY: 2-phenylethylamine + H(2)0 + phenylacetaldehyde + NH(3) + H(2)0(2).
-i- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)0 + O(2) -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Periplasmic;
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam, PF02728; Cu_amane_vm.nn. OXID_1; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_2; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
Oxidoreductase; Metal-binding; Copper; Calci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000269; CuNH_oxidase.

Pfam; PF01179; Cu_amine_oxid; 1.

Pfam; PF02727; Cu_amine_oxidN2; 1.

Pfam; PF02728; Cu_amine_oxidN3; 1.

PROSITE; PS01164; COPPER_AMINE_OXI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=20045000; PubMed=10576737;
                                                                                                                                                                                        METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   subunit.
PATHWAY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ween the Swiss Institute of Bioinf
European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue.
SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBCELLULAR LOCATION: Periplasmic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COFACTOR: Binds 1 copper ion, 2 calcium ions and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               H(2)O(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SWISS-PROT entry is copyright. It is produced through sen the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             z; 02-FEB-00.
EG13140; tynA.
; IPR000269; CuNH_oxidase.
        HOMODIMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STEPS OF
     K -> E
G -> E
G -> E
I -> II
I -> II
                                                                                                                                                                                                              COPPER.
                                                                                                                                                                                                                                                               2 (VIA CARBONYL OXYGEN)
CATALYTIC BASE (PROBABI
TOPAQUINONE.
                                                                                                                                                                                        COPPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2-PHENYLETHYLAMINE CATABOLISM
E (IN STRAIN W).
I (IN STRAIN W).
E (IN REF. 7).
E (IN REF. 1).
> VI (IN REF. 1).
II (IN REF. 1).
ING (IN REF. 1).
                                                                                                                                                                                                                                                                                                                                                                                                                       CARBONYL OXYGEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBONYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMINE OXIDASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.
Calcium-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            There are no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                       (PROBABLE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OXYGEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            enzyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Phillips
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RCHO +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            llips S.E.;
catalysis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a collaboration - MBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    per
```

```
RESULT 11
AMOHATICA
ID AMOHA
AC Q5911
DT 01-NN
DT 15-UI
DT 115-UI
DE Histi
OS Arthi
OC Bacti
OS Arthi
OC Bacti
OC NCBI,
RN [1]
RP SEQUI
RC STRA
RX MEDLI
RA Choi
RA Ch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CONFLICT
CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMOH_ARTGO
Q59118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ARTGO
                                                                                                              "Copper/topa guinone-containing histamine oxidase from Arthrobacter globiformis. Molecular cloning and sequencing, overproduction of precursor enzyme, and generation of topa guinone cofactor."; J. Biol. Chem. 270:4712-4720(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Histamine oxidase (EC 1.4.3.6) (Copper amine oxidase).
                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
STRAIN-IFO 12137 / ATCC 8010;
MEDLINE-95181469; PubMed-7876243;
Choi Y.-H., Matsuzaki R., Fukui T., Shimizu E.,
                                                                                                                                                                                                                                                                Ozaki Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                           Actinomycetales; Micrococcineae; NCBI_TaxID=1665;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacteria; Actinobacteria; Actinobacteria (class); Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arthrobacter globiformis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           658
ALSO SERVE AS SUBSTRATE CATALYTIC ACTIVITY: RCH(H(2)O(2).
                                                                                          PHENETHYLAMINE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGY----ISSAFLFGATGK----YGN
|||| ||| :|| :|| :|| :| | | ||
ELVVRWISTVGNYDYIFDWIFHENGTIGIDAGATGIEAVKGVKAKTMHDETAKDDTRYGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTTHVARAEEWPIMPT -- EWVHTLLKPWNFFDETPT 749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS 697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GNEQDAAQKFDPGTIR-LLSNPNKENRMGNPVSY--QIIPYAGGTHPVAKGAQFAPDEWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMEEQAAFLVGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAG--EPLPQNSSMA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LIDHNIVGTTHQHIYNFRLDLDVDGENNSLVAMDPVVKPNT---AGGPRTSTMQVNQYNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APSNAVLLNETIADYTGVPMEIPRAIAVFE-----RYAGPEYKHQEMGQPNVSTERR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGG-----LAET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IFDVRFQG----ERLVYEISLQEALAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PVVPVPMTARPEDGRDRVAPAVKPMQIIEPEGKNYTITGDMIHWRNWDFHLSMNSRVGPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PVPPGP-----AP---PLQFY-PQGPRFSVQGSRVASSLWTFSFGLGAFSGPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YFDGK--DGLKQ-----DARLLKYISYLDYGDGNYWAHPIENLVAVVDLEQKKIVKIEEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FYOGRYYDSLAQLEAGEAGLVNVVLIPDNGTGGSWS------LKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YHRLSFMDKQLWVTRYHPGERFPEGKYPNRSTHDTGLGQYSK--DNESLDNTDAVVWMTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1STVTYNDNGTKRKVMYEGSLGGMIVPYGDPDIGWYFKAYLDSGDYGMGTLTSPIARGKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -RGFSWERYQLAVTQRKEEEPSSSSVF-NQNDPWAPTVDFSDFINNETIAGKDLVAWVTA 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         142; Conservative
                                                                                                                                                                                                                                                           Tanizawa K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        659
757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     290
456
659
84378
                                                                                    TYRAMINE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9.9%;
                                RCH(2)NH(2) +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 397.5;
Pred. No. 2.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ס א ב
                                                                                       TRYPTAMINE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -> I (IN REF. 1).
-> P (IN REF. 1).
-> D (IN REF. 1).
65600BCED35243DB CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Micrococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      683
                                H(2)0 + O(2) =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .5e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₹
                                                                                       PUTRESCINE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                  Yorifuji T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arthrobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                RCHO
                                                                                       AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   757;
                                                                                          BENZYLAMINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            , 68
                             NH(3)
                                                                                                                                                                                                                                                                                     Sato
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             543
                                                                                                                                                                                                                                                                                     Ξ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STITITE REPORTED THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE PROCESS OF THE 
                                                                                                                                      γQ
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                             Š
                                                                                    밁
```

```
Matches 182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; D38508; BAA07517.1; -. HSSP; P46881; 1AV4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                       529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       103
                                                                                                                                                                                                                                                                                                                                                                                                                          189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20 PHCPSVSPSAQPWT--HPGQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCV 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue.
SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COFACTOR: Binds 1 copper ion and 1 topaquinone per subunit.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INDUCTION: BY HISTAMINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBCELLULAR LOCATION:
                                                                                                                                                                               AFCVFEQNOGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTVFHPSGAIEI 468
                                                                                                                                                                                                                                                                                       LAIYGGNSPAAMTTRYVDGG-FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRD
                                                                EAKATGIVFTAALPDKDYAYASEIAPGLGAPYHQHLFSARLDMMIDGDANRVEELDLVRL
                                                                                                            RFYATGYISSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLENWVWAEDMVFV
                                                                                                                                                        GICIHEEDAGILWK--HTDEWAGSDEVRRNRRLVVSFFTTVGNYDYGFYWYLYLDGTIEF
                                                                                                                                                                                                                                                                                                                                                                                                                          AHPIDGLVAFVDVENRRVNHL-----IDDGPVPV---PEVNGNYTDPAIRGELRTDLLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YKHRGRNLVTMTTAP-----RGLQSGDRATWFGLYYNISGAGFFLHHVGLELLVNHKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQEYLDIDQMIFNRELPQASGLLHHCCF
                    PMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIQ
                                                                                                                                                                                                                                           VVPYGDPSPYRSWQNYFDSGEYLVGRDANSLRLGCDCLGDITYMSPVVADDFGNPRTIEN
                                                                                                                                                                                                                                                                                                                                  IEIMQPEGPSFTLEGNHLSWAGWDLRVGFDAREGLVLHQLHHSHKGRRRPVIHRASISEM
                                                                                                                                                                                                                                                                                                                                                                            PLQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSGPRIFDVR--FQGER--LVYEISLQEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                    LDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPD-NGTGGSWSLKSPVPPGPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----ESTRFAYLGLIEPPKTTRQGDVTGAARLVRAMLWDAAQSRSLDVRLSLATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FSVELQLPPKAAALAHLDRGSPP------PAREALAIVFFGROPQ-----PNVSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PSTPLVQDPPVPATLVHAAAQHPLEQLSAEEIHEARRILAE---AGLVG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -TARGLTPAQVRVAPLSAGVFEYGNEEGKRL-----LRGLGFRQDHP-----ADHPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PF02728; Cu_amine_oxidn3; 1.
TE; PS01164; COPPER_AMINE_OXID_1;
TE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PF01179; Cu_amine_oxid; 1. PF02727; Cu_amine_oxidN2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF01179; Cu_amine_oxid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR000269; CuNH_oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 401
450
452
611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative 107; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --- RRELNPEADG-----QLPVLLEEFGIIEDIL--SEDPQWNAAL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Copper; TPQ; Metal-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 450
450
452
611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74979 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9.48;
=
-
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cytoplasmic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COPPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 377;
Pred. No. 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPAQUINONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OPPER (POTENTIAL).
OPPER (POTENTIAL).
233C46C017201AAO CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FALSE_NEG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .8e-22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               102
                       587
                                                                     477
                                                                                                                                                          417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142
                                                                                                            528
                                                                                                                                                                                                                                               359
                                                                                                                                                                                                                                                                                           408
                                                                                                                                                                                                                                                                                                                                       299
                                                                                                                                                                                                                                                                                                                                                                                 349
                                                                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28;
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 12
AMO1_ARTS1
   Query Match
Best Local S
Matches 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A., AND SEQUENCE OF 10-54; 358-381 AND 456-466. MEDLINE-93374858; PubMed-8366046; 2hang X., Fuller J.H., McIntire W.S.; 2hang X., Fuller J.H., McIntire W.S.; "Cloning, sequencing, expression, and regulation of the structural gene for the copper/topa quinone-containing methylamine oxidase from Arthrobacter strain P1, a Gram-positive facultative methylotroph."; J. Bacteriol. 175:5617-5627(1993).

-I- FUNCTION: THE EXACT FUNCTION OF MAOXI IS NOT KNOWN.
-I- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO + NH(3) +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMO1_ARTS1
Q07121;
                                                                            METAL
METAL
                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Copper amine oxidase precursor (EC 1.4.3.6) (MAOXI).
                                                                                                                                                                               InterPro; IPR000269; CuNH_oxidase.
Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arthrobacter sp. (strain P1).
Bacteria; Actinobacteria; Actinobacteridae;
                                                              SEQUENCE
                                                                                                                                                                   Oxidoreductase;
                                                                                                                                                                                                                                                                         EMBL; L12983; AAA22076.1; -. HSSP; P46881; 1AV4.
                                                                                                                                                                                                                                                                                                                   entities requires a license agreement (See http://www.isb-sibor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Actinomycetales; Micrococcineae; NCBI_TaxID=47915;
                                                                                                                        MOD_RES
                                                                                                                                        CHAIN
                                                                                                                                                        PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AGHCGTG----SEREHAAPGGTAVGHSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YFRGDQDAGACEVNPLACLPQAAACAPDLPAFSHGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AQDRDIDGQDLVVWHSFGLTHFPRPEDWP--IMPVDTTGFTLKPHGFFDENPTLNVPSSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPSFYSADSI 704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MLSFAGEP----LPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVDFSDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PKG-PGNPHG--NAFTQKRTLLARESEAVRDADGAKGRVWHISNPDSLNHLGHPVGYTLY
                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -EGNPTLAMADDSSIASRAAFARHHLWVTRHAEEELYAAGDFVNQHPGGAVLP-AYV
                                                              648
   Conservative
                                                              3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                Copper;
                                                           438
595
72760 I
                                                                                                     648
385
436
              9.18;
                                                              MW.
 96;
                                                        TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
; B2F9E267492253B5 CRC64;
Score 363; DB 1
Pred. No. 1e-20;
5; Mismatches 3
                                                                                                                                   COPPER AMINE OXIDASE
                                                                                                                                                                 Metal-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Micrococcaceae; Arthrobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      648
                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           740
 301;
                            Length 648
 Indels 164;
                                                                                                                                                                                                                                                                                                                                 .ch/announce,
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   590
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                         AMO2_ARTS1
                                                                                                                                                                                                                                                                                                     RESULT 13
                                                                                                                                                                                                           AMO2_ARTS1
Q07123;
Q1-FEB-1996
Q1-FEB-1996
15-JUN-2002
MEDLINE-93374858; PubMed-ource, MEDLINE-93374858; PubMed-ource, Zhang X., Fuller J.H., McIntire W.S.; Zhang X., Fuller J.H., McIntire W.S.; "Cloning, sequencing, expression, and regulation of the structural "Cloning, sequencing, expression, and regulation of the structural gene for the copper/topa quinone-containing methylamine oxidase from the copper/topa quinone-containing methylamine methylotroph."
                                                                        SEQUENCE FROM N.A.,
MEDLINE-93374858; P
                                                                                                                   Actinomycetales;
NCBI_TaxID=47915;
                                                                                                                                                  Arthrobacter sp. (strain
Bacteria; Actinobacteria;
                                                                                                                                                                                             Copper methylamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           156
                                                                                                                                                                                                                                                                                                                                                   626
                                                                                                                                                                                                                                                                                                                                                                               869
                                                                                                                                                                                                                                                                                                                                                                                                             568
                                                                                                                                                                                                                                                                                                                                                                                                                                           650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36
                                                                                                                                                                                                                                                                                                                                                   LNLPTSTSTTQTGEADTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GQSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LWTFSFGLGAFSGPRIFDVRFQGE----RLVYEISLQEALAIYGGNSPA-AMTTRYVDGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NISGAGFFLHHVGLELLVNHKALD-PARWTIQK--VFYQGRYYDSLAQLEAQFEAGLVNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GVSHPLDPLSRVEIARAVAILKE--GPAAAESFR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATGKYGNQVSEHTL-GTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KHFDFREGTAETRRSRKLVISFIATVANYEYAFYWHLFLDGSIEFLVKATGILSTAGOLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SH--YFGGLAET----VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSA-FLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YNIGNMANSLTLGCDCLGEIKYFDGHSVDSHGNPWTIENAICMHEEDDSI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VLIPDNGTGGSWSLKSPVPPGPAPPLQFY-------PQGPRFSVQGSRVASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FYSADSIYFRGDQDAGAC
                                                                                                                                                                                                                                                                                                                                                                                                             DGLHIWTQKDRNIVDTDLVVWYTFGMHHVVRLEDWP--VMPRQNIGFMLEPHGFFNQNPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NSSMARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD-----FSDFINNET---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTAFMAVDRLLETEQKAIRKTNEAKHRFWKIANHESKNLVNEPVAYRL-----IPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GEKNPYGQSLNNDGLYAPIHQHMFNVRMDFELDGVKNAVYEVDMEY-----PEHNPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DWSFRVGFTPREGLVLHQLKFKDQGVDRPVINRASLSEMVVPYGDTAPVQAKKNAFDSGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VRLEDDQA-----IPVPSARGNYLPKYVGEARTDLKPLNITQPEGASFTVTGNHVTWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EFAECEDAC--RKDPE-------VIAALAKRGLTNLDLVCFEPWSVGYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EYLDIDOMIFNRELPOASGLLHHCCFYKHRGRNLVTMTTAPRGLOSGDRA---TWFGLYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAGVAVAREADAVLV--DRAQARSFEAVVD-----LEAGTVDSWKLLAENIQPPFMLD 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQ 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NG-----IQLAA--RDDAYVSKRAQFARNNLWVTAYDRTERFAAGEYPNQATGAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIQMLSFAGEPLPQ 598
                                                                                                                                                                                             i (Rel. 33, Creat
i (Rel. 33, Last
composition (Rel. 41, Last
lylamine oxidase)
                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                       (strain P1).
bacteria; Actinobacteria (class);
                                                                                                                                                                                                                                                                                                                                                                                                                                          IAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS
                                                                        PubMed-8366046;
                                                                                                                                                                                           Last sequence update)
Last annotation updat
idase precursor (EC 1.
                                                                                                                                                                                                                                                                                                                                                 643
                                                                                                                                                                                                                                                                                                                                                                               715
                                                                                                                                                                                                                                                                         PRT;
                                                                                      OF 10-54;
                                                                                                                                                                                             n update)
(EC 1.4.3.
                                                                                                                                                                                                                                                                         648
                                                                                                                                                                                                                                                                         ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----FISVELREPSKDDL-----
                                                                                        358-381
                                                                                                                                                                                             .
6
                                                                                                                                    Arthrobacter
                                                                                                                                                  Actinobacteridae;
                                                                                                                                                                                               (MAOXII)
                                                                                        AND
              mine oxidase from
methylotroph.";
                                                                                        456-466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          148
                                                                                                                                                                                                                                                                                                                                                                                                             625
                                                                                                                                                                                                                                                                                                                                                                                                                                           697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     244
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                         δĀ
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                             δÃ
                                         밁
                                                                 õ
                                                                                             밁
                                                                                                                     Q
                                                                                                                                                   밁
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_1;
PROSITE; PS01165; COPPER_AMINE_OXID_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOD_RES
METAL
METAL
METAL
METAL
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; L12990; AAA22074.1; -. HSSP; P46881; 1AV4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oxidoreductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR000269; CuNH_oxidase.
                                                                                                                                                                                                                                                              149
              483
                                                                                                                                                   245
                                                                                                                                                                                                           192
                                         357
                                                                   430
                                                                                              305
                                                                                                                         370
                                                                                                                                                                              315
                                                                                                                                                                                                                                     270
                                                                                                                                                                                                                                                                                          213
                                                                                                                                                                                                                                                                                                                     109
                                                                                                                                                                                                                                                                                                                                                156
                                                                                                                                                                                                                                                                                                                                                                           58
                                                                                                                                                                                                                                                                                                                                                                                                     96
                                                                                                                                                                                                                                                                                                                                                                                                                               12
                                                                                                                                                                                                                                                                                                                                                                                                                                                          36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteriol. - CATALYTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H(2)O(2).
COFACTOR: Binds 1 of
SUBUNIT: HOMODIMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INDUCTION: BY METHYLAMINE
GATGKYGNQVSEHTL-GTVHTHSAHFKVDLDVAGLENWVWAEDMVFVPMAVPWSPEHQL-
                                                          SH--YFGGLAET----VLVVRSMSTLLNYDYVWDTVFHPSGAIEIRFYATGYISSA-FLF
                                                                                              YNIGNMANSLTLGCDCLGEIKYFDGHSVDSHGNPWTIENAICMHEEDDSI-
                                                                                                                                                  DWSFRVGFTPREGLVLHQLKFKDQGVDRPVINRASLSEMVVPYGDTAPVQAKKNAFDSGE
                                                                                                                                                                             LWTFSFGLGAFSGPRIFDVRFQGE----RLVYEISLQEALAIYGGNSPA-AMTTRYVDGG
                                                                                                                                                                                                                                   NISGAGFFLHHVGLELLVNHKALD-PARWTIQK--VFYQGRYYDSLAQLEAQFEAGLVNV
                                                                                                                                                                                                                                                                                                                                               EYLDIDQMIFNRELPQASGLLHHCCFYKHRGRNLVTMTTAPRGLQSGDRA---TWFGLYY
                                                                                                                                                                                                                                                                                                                                                                        RAGVAVAREADAVLV--DRAQARSFEAVVD-----LEAGTVDSWKLLAENIQPPFMLD
                                                                                                                                                                                                                                                                                                                                                                                                    RGSPPPAREALAIVFFGRQPQPNVSELVVGPLPHPSYMRDVTVERHGGPLPYHRRPVLFQ
                                                                                                                                                                                                                                                                                                                                                                                                                               GVSHPLDPLSRVEIARAVAILKE--GPAAAESFR-----FISVELREPSKDDL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                         GOSQLFADLSREELTAVMRFLTQRLGPGLVDAAQARPSDNCVFSVELQLPPKAAALAHLD
                                         KHFDFREGTAETRRSRKLVISFIATVANYEYAFYWHLFLDGSIEFLVKATGILSTAGQLP
                                                                                                                        FGMGKYTTPLTRGVDCPYLATYVDWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    al Similarity
177; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1
10
385
436
438
595
648 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               175:5617-5627(1993).
ACTIVITY: RCH(2)NH(2) + H(2)O +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copper; TPQ;
                                                                                                                                                                                                       --- IPVPSARGNYLPKYVGEARTDLKPLNITQPEGASFTVTGNHVTWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPAQUINONE (BY SIMILARITY).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
COPPER (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 363; DB 1;
Pred. No. 1e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COPPER METHYLAMINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Metal-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B2FB2787492253B5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and 1 topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                     -VIAALAKRGLTNLDLVCFEPWSVGYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0(2) -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 648;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels 164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        per subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RCHO + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and
                                                                                             ----TW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                        429
                                                                                                                                                                                                                                                                                                                                               212
                                                                                                                                                                                                                                                                                                                                                                                                     155
                                                                                                                                                                                                                                                                                                                                                                                                                                57
                                                                                                                                                                                                         244
                                                                                                                                                                                                                                                                                          269
                                                                                                                                                                                                                                                                                                                     148
                                                                   482
                                                                                              356
                                                                                                                                                                             369
                                                                                                                                                                                                                                   314
```

```
PRESULT 14
PROX_BA
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P46881
AC P468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 γo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Crystal structures of the copper-containing amine oxidase from Arthrobacter globiformis in the holo and apo forms: implications the biogenesis of topaquinone.";
Biochemistry 36:16116-16133(1997).
-!- CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) - RCHO + NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     p468B1;
01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Phenylethylamine oxidase precursor (EC 1.4.3.6) (Authorbacter globiformis.
Bacteria; Actinobacteria; Actinobacteria (class);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tanizawa K., Matsuzaki R., Shimizu E., Yorifuji T., Fukui T.; "Cloning and sequencing of phenylethylamine oxidase from Arthrobacter globiformis and implication of Tyr-382 as the precursor to its covalently bound guinone cofactor.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A., AND PARTIAL SEQUENCE STRAIN-IFO 12137 / ATCC 8010; MEDLINE-94197690; Pubmed-8147851; MEDLINE-94197690; Pubmed-8147851;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wilce M.C., Dooley D.M., Freeman H.C., McIntire W.S., Ruggiero C.E., Tanizawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PAOX_ARTGO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-98070236; PubMed-9405045;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 9-628.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            covalently bound quinone cofactor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Actinomycetales; Micrococcineae; Micrococcaceae;
                                                                                                                                                                                                                                                                            entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H(2)O(2).
COFACTOR: Binds 1 c
SUBUNIT: HOMODIMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INDUCTION: BY PHENETHYLAMINE.

PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue.

SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LNLPTSTSTTQTGEADTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DGLHIWTQKDRNIVDTDLVVWYTFGMHYVVRLEDWP--VMPRQNIGFMLEPHGFFNQNPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----IAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTAFMAVDRLLETEQKAIRKTNEAKHRFWKIANHESKNLVNEPVAYRL-----IPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GEKNPYGQSLNNDGLYAPIHQHMFNVRMDFELDGVKNAVYEVDMEY----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FYSADSIYFRGDQDAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NG-----IQLAA--RDDAYVSKRAQFARNNLWVTAYDRTERFAAGEYPNQATGAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NSSMARGESWERYQLAVTQRKEEEPSSSSVFNQNDPWAPTVD----FSDFINNET---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -QRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NKWGHPRGYRIQMLSFAGEPLPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biophys. Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          copper ion and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Commun. 199:1096-1102(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tanizawa K., Yamaguchi H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              بر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  638
                                                                                                                                                                                                                                                                            (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Guss J.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              topaquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Amine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arthrobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matsunami
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 per
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oxidase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         --- PEHNPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          H:,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NH(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             598
```

EMBL; U03517; AAA18114.1; PDB; 1AVK; 18-MAR-98. PDB; 1AVL; 18-MAR-98. PDB; 1AV4; 25-MAR-98.

send an email to license@isb-sib.ch).

InterPro; IPR000269; CuNH_oxidase.

Cu_amine_oxid; 1. Cu_amine_oxidN2;

```
RESULT 15
AMO_PEA
                                                                                                                     Ş
                                                                                                                                                В
                                                                                                                                                                    Š
                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ŷ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
     332B
                                                                                                  밁
                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DR FTT FTT ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 157
 AMO_PEA
Q43077;
01-NOV-1997
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
MOD_RES
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISULFID
MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam; PF02728; Cu_amine_oxidNJ; 1.
PROSITE; PS01164; COPPER_AMINE_OXID_1; 1.
PROSITE; PS01165; COPPER_AMINE_OXID_2; 1.
Oxidoreductase; Copper; TPQ; 3D-structure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROPEP
                                                                                                  619
                                                                                                                         694
                                                                                                                                                563
                                                                                                                                                                                                                                                                                                                                           333
                                                                                                                                                                                                                                                                                                                                                               400
                                                                                                                                                                        634
                                                                                                                                                                                                506
                                                                                                                                                                                                                                             449
                                                                                                                                                                                                                                                                     519
                                                                                                                                                                                                                                                                                            390
                                                                                                                                                                                                                                                                                                                    460
                                                                                                                                                                                                                                                                                                                                                                                            276
                                                                                                                                                                                                                                                                                                                                                                                                                  345
                                                                                                                                                                                                                                                                                                                                                                                                                                          216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80 TNGTVISAVELDTAATGELPVLEEEFEVVEQLLATDERWLKALAARNLDVSKVRVAPLSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           87
                                                                                                 RSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLLHHCCFYKHRGRNLVTMTTAPRGL----QSGDRATWFGLYYNISGAGFFLHHVGLELL
                                                                                                                         EDP
                                                                                                                                            GGAGLPSY--IAQDRDIDGQDIVVWHTFGLTHFPRVEDWP--IMPVDTVGFKLRPEGFFD
                                                                                                                                                                   PWAPTVDFSDFINNETIAGKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFD
                                                                                                                                                                                                                                                                                       LYLDGTIEFEAKATGVVFTSAFPEGGSDNI-SQLAPGLGAPFHQHIFSARLDMAIDGFTN
                                                                                                                                                                                                                                                                                                                                                               SQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGLAETVLVVRSMSTLLNYDYVWDTV
                                                                                                                                                                                                                                                                                                                                                                                                                                     TQKPISITQPEGPSFTVTGGNHIEWEKWSLDVGFDVREGVVLHNIAFRDGDRLRPIINRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GPAPPLQFYPQGPRFSVQ-GSRVASSLWTFSFGLGAFSGPRIFDVRFQ-GERL---VYEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VNHKALDPARWTIQKVFYQGRYYDSLAQLEAQFEAGLVNVVLIPDNGTGGSWSLKSPVPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HGGPL-----PYHRRPVLFQEYLDIDQMIFN---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KAAALAHLD--RGSPPPAREALAIVFF----GRQPQPNVSELVVGPLPHPSYMRDVTVER 140
                                                                                                                                                                                           LNEPVGYKLHAHNQPTLLADP----GSSIARRAAFATKDLWVTRYADDERYPTGDFVNQHS
                                                                                                                                                                                                                  WGHPRGYRI----QMLSFAGEPLPQNSSMARGFSWERYQLAVTQRKEEEPSSSSVF-NQND
                                                                                                                                                                                                                                          RVEEEDVVRQTMGPGNERGNAFSR---KRTVLTRESEAVREADARTGRTWIISNPESKNR
                                                                                                                                                                                                                                                               WVWAEDMVFVPMAVPWSPEHQLQRLQVTRKLLEMEEQAAFLVGSATPRYLYLASNHS-NK
                                                                                                                                                                                                                                                                                                               FHPSGAIEIRFYATGYI-SSAFLFGATGKYGNQVSEHTLGTVHTHSAHFKVDLDVAGLEN
                                                                                                                                                                                                                                                                                                                                       -GNPREIRNGICMHEEDWGILAK--HSDLWSGINYTRRNRRMVISFFTTIGNYDYGFYWY
                                                                                                                                                                                                                                                                                                                                                                                      SIAEMVVPYGDPSPIRSWQNYFDTGEYLVGQYANSLELGCDCLGDITYLSPVISDAF---
                                                                                                                                                                                                                                                                                                                                                                                                              SLQEALAIYGGNSPAAMTTRYVD-GGFGMGKYTTPLTRGVDC----PYLATYVDWHFLLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---RVIDTGVFPVPA--EHGNYTDP------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GVFEYA---EERGRRIL----RGLAFVQDFPEDSAW---AHPVDGLVAYVDVVSKEVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RIAYLGVLDPARGAGSEAEDRRFRVFIHDVSGARPQ------EVTVSV 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                 621
                                                                                                                        696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               382
431
433
592
317
382
638 /
(Rel. 35, Created)
(Rel. 35, Last sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  À,
                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         638
382
431
433
592
343
382
70646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8.5%;
23.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPAQUINONE.
COPPER.
COPPER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Y->F: LOSS OF ACTIVITY.
; 1800396BA7A983F2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 340;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COPPER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PHENYLETHYLAMINE OXIDASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
O
                                    674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
.5e-19;
                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Metal-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---------ELTGPLRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 638;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RELPQAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                        448
                                                                                                                                                                                                                                                                                                                518
                                                                                                                                                                                                                                                                                                                                                                                                              399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        173
                                                                                                                                                                                                                                          505
                                                                                                                                                                                                                                                                577
                                                                                                                                                                                                                                                                                                                                        389
                                                                                                                                                                                                                                                                                                                                                                                                                                      275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28;
```

```
밁
                                                                                                                                               Matches
                                                                                                                   CARBOHYD
CARBOHYD
                                                                                                                                              METAL
METAL
METAL
DISULFID
DISULFID
CARBOHYD
                                                                                                                                                                                                                         CHAIN
METAL
METAL
METAL
METAL
METAL
METAL
METAL
METAL
METAL
METAL
METAL
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                        Signal;
SIGNAL
                                                                                                                                                                                                                                                                                                                                                        Pfam; PF01179; Cu_amine_oxid; 1.
Pfam; PF02727; Cu_amine_oxidN2; 1.
Pfam; PF02728; Cu_amine_oxidN3; 1.
Pfo2728; Cu_amine_oxidN3; 1.
PROSITE; PS01164; COPPER_MINE_OXID_1; 1.
PROSITE; PS01165; COPPER_MINE_OXID_2; FA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-JUN-2002 (Rel. 41, Last annotation update)
Amine oxidase [copper-containing] precursor (EC 1.4.3.6).

Pisum sativum (Garden pea).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosid;

eurosids I; Fabales; Fabaceae; Papilionoideae; Vicieae; Pisum.
                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; L39931; AAA62490.1; -.
PDB; IKSI; 24-DEC-97.
InterPro; IPR000269; CUNH_oxidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Crystal structure of a eukaryotic (pea seedling) copper-containing amine oxidase at 2.2-A resolution."; Structure 4:943-955(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
Tipping A.J., McPherson M.J.;
Submitted (MAR-1995) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                Oxidoreductase; Metal-binding; Copper;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kumar V., Dooley D.M., Freeman H.C., McGuirl M.A., Wilce M.C., Zubak V.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kumar V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=96398683; PubMed=8805580;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          K-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
                         282 SLKSPVPPGPAPP--LQFYPQGPRFSVQGSRVASSLWTFSFGLGAFSG-----PRIFDV- 333
                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PTM: Topaquinone (TPQ) is generated by copper-dependent autoxidation of a specific tyrosyl residue (By similarity). SIMILARITY: BELONGS TO THE COPPER/TOPAQUINONE OXIDASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COFACTOR: Binds 1 copper ion, 1 manganese ion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATALYTIC ACTIVITY: RCH(2)NH(2) + H(2)O + O(2) =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBUNIT: HOMODIMER
SKOSP-PFGPKOHSLTSHQPQGPGFQINGHSVSWANWKFHIGFDVRAGIVISLASIYDLE 291
                                                                Similarity
                                                                                                                                                                                                                                                                                                                                      3D-structure
                                                                                                       26
477
477
478
6118
6118
412
467
469
628
1162
344
1156
389
389
                                                      Conservative
                                                                                                        A,
                                                                                          583
76358 MW;
                                                                                                                                   8.0%;
                                                  Score 320; DB
Pred. No. 2.6e
6; Mismatches
                                                                                                     N-LINKED (GLCNAC. .
N-LINKED (GLCNAC. .
N-LINKED (GLCNAC. .
30735390071DD18E C
                                                                                                                                                                                     COPPER.
COPPER.
COPPER.
                                                                                                                                                                                                                           MANGANESE (V
                                                                                                                                                                                                                                                                     MANGANESE
                                                                                                                                                                                                                                                                                 MANGANESE
                                                                                                                                                                                                                                                       MANGANESE.
                                                                                                                                                                                                                                                                                            MANGANESE.
                                                                                                                                                                                                                                                                                                        AMINE OXIDASE [COPPER-CONTAINING]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Guss J.M.,
                                                                                                                                                                                                                                                                                                                                               Manganese;
                                                                                                                                                                                                                                       (VIA CARBONYL OXYGEN)
                                                                                                                                                                                                                                                                              (VIA CARBONYL OXYGEN)
                                                                                                                                                                                                                                                                                                                                                             FALSE_NEG.
                                                                DB 1;
.6e-17;
                                                     189;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      databases
                                                                           Length 674;
                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Harvey
                                                                                                                                                                                                                                                                                                                                            TPQ; Glycoprotein;
                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and 1 topaquinone
                                                                                                                                (PROBABLE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RCHO + NH(3) +
                                                  90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rosidae;
                                                  Gaps
```

Š

```
밁
                                                             Ş
                                                                                   ₽
                                                                                                      Ş
                                                                                                                           В
                                                                                                                                              Š
                                                                                                                                                                    밁
                                                                                                                                                                                     δÃ
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                      В
                                        615 NKDIVMWHVVGIHHVPAQEDFPIMPLL--STSFELRPTNFFERNP 657
                                                                                516 ----TESDAKITIGLAPAELVVVNPNIKTAVGNEVGYRL-IPAIPAHPLLTEDDYPQ--- 567
                                                                                               548 KLLEMEEQAAFLYGSATPRYLYLASNHSNKWGHPRGYRIQMLSFAGEPL------PQNSS 601
                                                                                                                                                                                                         352 DTYVHSANGTPILLKNAICVFEQ-----YGNIMWRHTENGIPNESIEESRTEVNLIV 403
                                                                                                                                                                                                                         393 DWHFLLESQAPKTIRDAFCVFEQNQGLPLRRHHSDLYSHYFGGL------AETVLVV 443
              652 GKDLVAWVTAGFLHIPHAEDIPNTVTVGNGVGFFLRPYNFFDEDP 696
```

Search completed: May 20, 2003, 12:03:42 Job time: 20 secs

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Searched:
                                                                                                                                                                                                                                   Pred. No. is the number of results prediscore greater than or equal to the score and is derived by analysis of the total
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB DB
                                                                                                                                                                Score
                                                            1179
1179
1179
1179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       seq length: 0 seq length: 2000000000
                                                                                                                                                                Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         May 20, 2003, 07:58:08; Search time 18.4058 Seconds (without alignments) 1578.232 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               908470 segs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-081-408-4
1179
                                  100
100
100
100
100
100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A_Geneseq_101002:*
1: /SIDS2/qcadata/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MSPILGYWKIKGLVQPTRLL....IAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                   /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1988.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1991.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1991.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1995.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1995.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1984.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1987.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1987.DAT:*
                                                                                                                                                                                                                                                                                           /SIDS2/gcgdata/geneseq/geneseqp-emb1/aA2000
/SIDS2/gcgdata/geneseq/geneseqp-emb1/aA2001
/SIDS2/gcgdata/geneseq/geneseqp-emb1/aA2002
                                                                                                                                                                Length
                                             218
224
225
240
240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.5 (c) 1993 - 2003 Compugen
                                                                                                                                                                  В
                                                                                                                                                                  IJ
                                                                        AAW84205
ABB09809
AAW02122
AAW02123
AAR72793
                               AAW73909
AAB31612
AAW74114
                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                  predicted by chance score of the result
                                                                                                                                                                                                                                        score
                                                                                                                                                                                                                                        distribution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   908470
GST protein sequen
Amino acid sequenc
GST/GI transport r
GST/GI transport r
                                                                                                                                                             Description
                                                                       Glutathione-s-tran Glutathione-s-tran Glutathione-s-tran
                                                                                                                   Protein comprising Glutathione-S-tran
                                                                                                                                                                                                                                               to have
being pr
                                                                                                                                                                                                                                                 printed,
                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 1
AAW84205
ID AAW84205 standard; Protein; 218
    Proteinase site; bone morphogenetic fusion protein; bone binding site; bone morphogenetic protein; transforming growth factor beta; active fragment; wound healing; bone growth; purification tag.
                              Hall FL,
                                                                        (HALL/)
(HANB/)
(NIMN/)
(SHOR/)
                                                                                                                                              03-JUN-1997;
                                                                                                                                                                           02-JUN-1998;
                                                                                                                                                                                                                                                                Unidentified
                                                                                                                                                                                                                                                                                                                                                  Protein comprising a purification tag.
                                                                                                                                                                                                                                                                                                                                                                                                                AAW84205
                                                                                                                                                                                                        10-DEC-1998
                                                                                                                                                                                                                                     WO9855137-A1
                                                                                                                                                                                                                                                                                                                                                                                  25-MAR-1999 (first entry)
                                                         (MULL/)
                                                        WU L.
                                                                       HAN B.
NIMNI
SHORS
                                                                                                                    HALL
```

179 100.0 28	1179 100.0 282	179 100.0 28	179 100.0 28	179 100.0 27	179 100.0 27	179 100.0 27	179 100.0 27	179 100.0 27	179 100.0 27	179 100.0 27	179 100.0 27	179 100.0 26	179 100.0 26	179 100.0 26	179 100.0 25	179 100.0 25	179 100.0 25	179 100.0 25	179 100.0 25	179 100.0 25	179 100:0 25	179 100.0 25	179 100.0 25	179 100.0 25	179 100.0 25	179 100.0 25	179 100.0 24	179 100.0 24	179 100.0 24	179 100.0 24	179 100.0 24	179 100.0 24	179 100.0 24	179 100.0 24
	20																																	
9	AAW74123	412	632	409	410	7410	409	409	11	632	170	410	412	412	411	412	411	413	410	7411	7410	410	7412	412	7411	7411	7411	7410	7410	7410	12	4	W7411	AAW74112
											_															٠								
ດ																																		

ALIGNMENTS

A

```
WPI; 1999-059875/05
              Han B, Nimni ME,
                                                         Ŧ.
                                    O E
                                                                         97US-0868452
                                                                                        98WO-US11189
               Shors EC,
               ž
               ŗ,
```

```
RESULT 2
ABB09809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               an ECM/bone binding site, a second proteinase site, and a bone morphogenetic protein active fragment. The fusion proteins of the invention also includes proteins that have transforming growth factor beta active fragments instead of bone morphogenetic protein active fragments. The bone morphogenetic fusion proteins can be used for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present sequence represents a protein comprising a purification tag that was used in the creation of the bone morphogenetic fusion proteins of the invention. The bone morphogenetic fusion protein may contain some or all of the following elements: a purification tag, a proteinase site.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fragments. The works markers bone growth.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New bone morphogenetic fusion proteins - comprising a purification tag and a bone morphogenetic active fragment, used for enhancing wound healing or bone growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB; AAV99373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure; Page 39-40; 64pp; English
Topical compositions, ultraviolet radiation,
                                                                                                                       06-SEP-2000; 2000ES-0000217.
                                                                                                                                                                             08-MAR-2002.
                                                                                                                                                                                                                                Schistosoma japonicum
                                                                                                                                                                                                                                                                                                    Glutathione-S-transferase
                                                                                                                                                                                                                                                                                                                                                                                  ABB09809 standard;
                                       WPI; 2002-332437/37.
                                                                  Armengol
                                                                                                                                                31-JUL-2001; 2001FR-0010239.
                                                                                                                                                                                                                                                            heavy metal
                                                                                                                                                                                                                                                                         Glutathione-S-transferase; GST; enzyme; metallothionein; MT-IIA;
                                                                                                                                                                                                                                                                                                                             22-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MSPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                             PROVITAL
                                                                  SR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218 AA;
                                                                                                                                                                                                                                                           contact;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                  Benaigues
                                                                                             SA
                                                                                                                                                                                                                                                                                                                                                                                  protein; 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 1179; DB 20; 100.0%; Pred. No. 4e-113;
                                                                                                                                                                                                                                                            Ş
used to protect against heavy metals contain metallothionein proteins -
                                                                  ž
                                                                                                                                                                                                                                                            light.
                                                                                                                                                                                                                                                                                                  (GST)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                 of Schistosoma japonicum
                                                                                                                                                                                                                                                                                                                                                                                   ጀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ) be used for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       proteinase site, a bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218;
            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     some
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
RESULT 3
AAW02122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present sequence represents the glutathione-S-transferase (GST) protein of Schistosoma japonicum. A human metallothionein class IIA (MT-IIA) was expressed fused to the present GST protein, for purification purposes. The MT-IIA protein was used to produce topical pharmaceutical and cosmetic compositions, in the form of gels, creams, ointments, soaps and body lotions. In the compositions, the metallothionein proteins have a prosthetic group attached to a zinc ion. The topical compositions can be used for protection of human or animal external tissue against the effects of heavy metal contact and UV light.
                                                                                                                  .10-FEB-1995;
07-MAR-1995;
30-JUN-1995;
11-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example; Page 28-29; 33pp; French
Use of selective src SH2 domain ligand treating bone resorption disease
                                      WPI; 1996-372674/38.
                                                                                                                                                                                                                          21-AUG-1996.
                                                                                                                                                                                                                                                                              Not specified.
                                                                                                                                                                                                                                                                                                       src homology 2 dor
Grb2 SH2; SH-PTP2
                                                                                                                                                                                                                                                                                                                  Bone resorption disease; osteoporosis; src SH2 domain antagonist; src homology 2 domain; glutathione-s-transferase; fyn SH2;
                                                                                                                                                                                                                                                                                                                                                           Glutathione-s-transferase epitope
                                                                                                                                                                                                                                                                                                                                                                                                                AAW02122;
                                                                                                                                                                                                                                                                                                                                                                                                                                        AAW02122 standard; Protein;
                                                                Dunnington DJ
                                                                                                                                                                       29-DEC-1995;
                                                                                                                                                                                                   07-FEB-1996;
                                                                                                                                                                                                                                                    EP727211-A1.
                                                                                                                                                                                                                                                                                                                                                                                     28-OCT-1996
                                                                                         (SMIK ) SMITHKLINE BEECHAM CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GDVKLTOSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                     (first entry
                                                                                                                                 95US-0400220
95US-0497357
                                                                                                                                                         95US-0580868
95US-0386381
                                                                                                                                                                                                   96EP-0200270
                                                                                                                      95US-0541080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 1179;
100.0%; Pred. No. 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                ı
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4e-113;
               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 23;
               prepare medicament
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                 for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
```

```
RESULT 4

AAMO21212

AAWO2121

AAWO21

AAWO2121

AAWO21

AAWO2121

AAWO21

AAWO2121

AAWO21

AAWO2121

AAWO21

AAWO2121

AAWO21

AAWO2121

AAWO21

AAWO2121

AAWO21

AAWO2121

AAWO21

AAWO2121

AAWO2121

AAWO2121

AAWO2121

AAWO2121

AAWO2121

AAWO2121

AAWO21

A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 100
Matches 218; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fusion proteins with human SH2 domains from fyn (see also AAW02124), Grb2 (AAW02127) and SH-PTP2 (AAW02125); a similar epitope (AAW02123) was used to construct a fusion protein with human p85 SH2 domain (see also AAW02126). These fusion proteins, and tagged proteins including other SH2 domains (see also AAW02119-21), can be used in binding assays to determine the specificity of cpds. to inhibit SH2 domains; cpds. that selectively inhibit the human src SH2 domain are useful
                                                                                                                                                                                                                                                                                                                                                 29-DEC-1995;
10-FEB-1995;
07-MAR-1995;
30-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A glutathione-s-transferase epitope (AAW02122) was used to construct fusion proteins with human SH2 domains from fyn (see also AAW02124),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bone resorption 
src homology 2 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Example 11; Page 31-32; 47pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Glutathione-s-transferase epitope
                                                        Use of selective src SH2 domain ligand treating bone resorption disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-FEB-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EP727211-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Not specified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW02123 standard; Protein; 225 AA
                                                                                                                                                  WPI; 1996-372674/38
                                                                                                                                                                                                        Dunnington
                                                                                                                                                                                                                                                                (SMIK ) SMITHKLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-AUG-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          treating bone resorption diseases such as osteoporosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    224
Page 31-32; 47pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                   95US-0580868.
95US-0386381.
95US-0400220.
95US-0497357.
95US-0541080.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ξ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 domain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96EP-0200270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               disease;
                                                                                                                                                                                                                                                                   BEECHAM CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 1179; DB 17; 100.0%; Pred. No. 4.1e-113; tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e; osteoporosis; src SH2 don glutathione-s-transferase;
                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SH2 domain antagonist;
ferase; p85 SH2.
                                                                                      prepare medicament
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 224;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
xaaaaaaaaax x
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Sim
Matches 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A glutathione-s-transferase epitope (AAW02122) was used to construct fusion proteins with human S12 domains from fyn (see also AAW02124), Grb2 (AAW02127) and SH-PTP2 (AAW02125); a similar epitope (AAW02123) was used to construct a fusion protein with human p85 SH2 domain (see also AAW02126). These fusion proteins, and tagged proteins including other SH2 domains (see also AAW02126). Can be used in binding assays to determine the specificity of cpds. to inhibit SH2 domains; cpds. that selectively inhibit the human src SH2 domain are useful
                                                                                                                      13-JUL-1994;
30-AUG-1993;
17-NOV-1993;
03-JAN-1994;
25-FEB-1994;
15-APR-1994;
30-JUN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                              W09506415-A
                                                                                                                                                                                                                                                                                                      Schistosoma
                                                                                                                                                                                                                                                                                                                                            SDI-1; senescent cell-derived inhibitor; DNA synthesis;
senescence; cell proliferation; cancer; therapeutic; vu
                                                                                                                                                                                                                                                                                                                                                                                Glutathione-s-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR72793;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR72793 standard;
                                  WPI; 1995-131101/17
N-PSDB; AAQ86774.
                                                                                                                                                                                                                                                     09-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                           16-OCT-1995
                                                                                                                                                                                                                            26-AUG-1994;
                                                                                                                                                                                                                                                                                                                               fusion protein; glutathione-s-transferase.
                                                                                               (BAYU ) BAYLOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      treating bone resorption diseases such as osteoporosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MSPILGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              225 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; ilarity 100.0%; Conservative 0
                                                                                                                                                                                                                                                                                                      japonicum
                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                  94US-0274535.
93US-0113372.
93US-0153564.
94US-0160814.
94US-0203535.
94US-0229420.
                                                                                                COLLEGE MEDICINE
                                                                                                                                                                                                                            94WO-US09700
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1179; DB 17;
Pred. No. 4.2e-113;
); Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                            vulnerary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
```

Nucleic acid encoding a protein or polypeptide that inhibits synthesis in a recipient cell - useful to inhibit cell

DNA

```
RRESULT 6
AAW73009
JID AAW7
XX JAW7
AC AAW7
AC AAW7
AC AAW7
XX CST
XX CCLL
XX Proto
XX Schl
XX JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW JP11
AW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SXCCCCCX PX PT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The senescent cell-derived inhibitor-1 (SDI-1) inhibits DNA synthesis in a recipient cell and is capable of associating with a cyclin (esp. cyclin D1) or cyclin-dependent kinase (esp. CDK2). Production of a fusion protein of SDI-1 and glutathione-s-transferase (AAR72793) facilitated the preparation and isolation of recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    proliferation in tumour cells, treat wound an antiviral or antiparasitic agent
                                                                                                                                                                                                         for scre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cell surface nonexpressive functional protein; cell-permeating protein; protein screening; protein production; GST; glutathione-S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GST protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure;
This sequence is the Glutathione-S-transferase (GST) protein, which was expressed in the microbe of the invention. The microbe has a cell surface nonexpressive functional protein on its surface, fused to a support protein derived from a cell-permeating protein. The microbe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW73909;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAW73909 standard;
                                                                                                                               Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Schistosoma japonicum
                                                                                                                                                                                                                                                                                                                                                         (SUME ) SUMITOMO ELECTRIC IND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JP11009278-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                    robe having a nonexpressive functional screening and large-scale preparation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                           1999-145895/13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      l Similarity
218; Conserv
                                                                                                                                                                                                                                                                                 AAX01312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           232
                                                                                                                            Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; ilarity 100.0%; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                              97JP-0165788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                97JP-0165788
                                                                                                                               ; 6-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  169pp;
                                                                                                                          13pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                            Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1179; DB 16;
Pred. No. 4.3e-113;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                              ဗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₿
                                                                                                                                                                                                       protein on it
of a selected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or burn tissue,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ٥r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                     cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
  can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
RESULT 7
AAB31612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SSSSS
밁
                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
Best L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          be used for screening for biological activity of a cell surface nonexpressive protein. It can also be used for preparation of a selected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                     Example 9; Fig
                                                                                                                                                                                                                                                    Unidentified.
                                                                                                                                                                                                                                                                   Heat shock protein; Hsp; Th1 response; Th1 cell; CD4+ T lymphocyte lymphocyte; Hsp65; Hsp40; Hsp10; Hsp60; Hsp71; microbial pathogen; glutathion-S-transferase; GST.
                                                                                                                                                                                                                                                                                                Amino acid sequence
                                                                                                                                                                                                                                                                                                                                                AAB31612 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     functional
                                                                                                     lymphocyte
                                                                                                             Screening
                                                                                                                                                    Siegel M,
                                                                                                                                                                                   08-JUL-1999;
                                                                                                                                                                                                   10-JUL-2000;
                                                                                                                                                                                                                    18-JAN-2001.
                                                                                                                                                                                                                                    WO200104344-A2
                                                                                                                                                                                                                                                                                                                30-APR-2001
                                                                                                                                                                                                                                                                                                                                AAB31612;
                                                                                                                                                                    (STRE-) STRESSGEN BIOTECHNOLOGIES
                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local 218;
                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                               KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                       DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                   2001-138361/14.
                                                                                                                             AAF25015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                            for compounds that stimulate Th1-like responses
                                                                                                                                                    Chu NR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                      cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                    2000WO-US18828
                                                                                                                                                                                                                                                                                                                (first
                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ጅ
                                                                                                                                                                                   99US-0143757
                                                                                    88pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                of glutathion-S-transferase
                                                                                                                                                     Mizzen
                                                                                                                                                                                                                                                                                                                entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a large amounts
                                                                                      English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1179; DB 20;
Pred. No. 4.6e-113;
                                                                                                                                                                                                                                                                                                                                                 ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                     CORP
                                                                                                                                                                                                                                                                                                 (GST).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240;
                                                                                                              'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                   cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

The present sequence represents a glutathion-S-transferase (GST), which was used linked to HPV16 E7 protein, for purification purposes. The E7 protein was used to construct a fusion protein with Mycobacterium bovis heat shock proteins (Hsp). The fusion proteins are used in the method of the invention. The specification describes a method of determining whether a compound stimulates a Th1-like response. Thi cells are a subse of CD4+ T lymphocyte cells. The method comprises contacting naive lymphocytes in vitro with a fusion protein comprising at least a fragmen of Hsp, and then detecting the TH1-like response exhibited by the cell sample. The proteins which may be used in the method of the invention are

a fragment

subset

of

```
RRESULT 8
AAW74114
ID AAW7
XX
AAW74114
AC AAW7
XX
AC AAW7
XX
AC AAW7
XX
DT 04-P
XX
KW Gast
KW D2H,W
KW D2H,W
KW Cher
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
XX
HOME
X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                            Alvarez
Omahony
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hsp65, Hsp40, Hsp10, Hsp60, and Hsp71. The method may be used to identify compounds that stimulate Thi-like responses in response to microbial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pathogens
glutathione-S-transferase and a gastro-intestinal transport protein binding peptide. The invention relates to purified proteins (I) that bind specifically to at least one of the gastro-intestinal (GI) tract receptors human intestinal peptide-associated transporter (HPT1),
                                                                                                                                                                                                              New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (CYTO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GST/GI transport receptor binding protein fusion sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAW74114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW74114 standard; peptide;
                                                                                                          This sequence
                                                                                                                                                                                                                                                                                                                                                         WPI; 1999-009568/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    W09851325-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        therapeutic agent delivery; therapy; fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CYTOGEN CORP.
ELAN CORP PLC
                                                                                                                                                               Page 217; 294pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                            Belinka BA, (
Patterson CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                            represents a fusion protein between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        970S-0046595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US10088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                            Cagney GM,
, Singleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1179; DB 22;
Pred. No. 4.7e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ጀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                              Carter JM,
J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                     Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245;
                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

Homo sapiens

19-NOV-1998

15-MAY-1998;

PXX PIXX PAX PR

Alvarez Omahony

Δĺ

Belinka B*l* Patterson

a BA, n CA,

Cagney GM, , Singleton

Carter J;

ΉČ

Lambkin

(CYTO-)

CYTOGEN CORP.

PLC.

15-MAY-1997;

97US-0046595 98WO-US10088

WPI; 1999-009568/01.

proteins

that bind

specifically

៥

receptors

'n

the

```
888888888888888888888888888888888888
                                            hPEPT1, D2H and human sucrose-isomaltase complex (hSI). (I) provide active transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, cancer, migraine, or angina pectoris. Specifically they are used to deliver insulin or leuprolide, but many other suitable therapeutic agents are disclosed, including genes or inhibitory nucleic acid, imaging agents and antigens. (I) may also provide targeting to the GI tract. Other uses of (I) are: (i) to determine the level of specified receptors in a sample (In a binding assay); and (ii) to screen for molecules that bind (I). Immunogenic analogues or derivatives of (I) are used to locate, detect and measure (I), e.g. for imaging, monitoring treatment, tissue analysis etc., also for peptide purification and immobilisation.
Sequence
247 AA;
```

```
RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                   Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; dlabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pecto:
                                                                                                                                                                                    04-MAY-1999
therapeutic agent delivery; therapy; fusion protein.
                                                                                                                                    GST/GI transport receptor binding protein fusion sequence
                                                                                                                                                                                                                                                                            AAW74120 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Match 100.0%;
Local Similarity 100.0%;
ses 218; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ب
                                                                                                                                                                                                                                                                                                                                                                                                                     KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                             KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                          peptide;
                                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1179; DB 20;
Pred. No. 4.7e-113;
Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                        pectoris;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

В S 밁 Q 밁 20 밁

```
RESULT 10
AAW74103
ID AAW74
õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cc glutathione-S-transferase and a gastro-intestinal transport protein countries to binding peptide. The invention relates to purified proteins (I) that bind expecifically to at least one of the gastro-intestinal (GI) tract creceptors human intestinal peptide-associated transporter (HPTI). Chapper 1, D2H and human sucrose-isomaltase complex (hSI). (I) provide cactive transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, cc cancer, migraine, or angina pectoris. Specifically they are used to center insulin or leuprolide, but many other suitable therapeutic agents are disclosed, including genes or inhibitory nucleic acid, imaging agents cand antigens. (I) may also provide targeting to the GI tract. Other uses cof (I) are: (1) to determine the level of specified receptors in a sample cof (I) are: (1) to determine the level of specified receptors in a sample composite analogues or derivatives of (I) are used to raise antibodies and in immunoassays. The antibodies are used to locate, detect and composite composite contents and contents and contents of the particles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        measure (I), e.g. for imaging measure also for peptide purification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                                                                                                                D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pecto
                                                                                                       W09851325-A2
                                                                                                                                                                                                                                                                                                                            GST/GI transport receptor binding protein fusion sequence
                                                                                                                                                                                                                                                                                                                                                                               04-MAY-1999
                  15-MAY-1998;
                                                                                                                                                   Homo sapiens
                                                                                                                                                                                             therapeutic
                                                                                                                                                                                                                                                                                      Gastro-intestinal transport receptor;
                                                                                                                                                                                                                                                                                                                                                                                                                            AAW74103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAW74103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This sequence represents a fusion protein between
                                                               19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hPEPT1; human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFLSKLPEMLKMFEDRLCHKTYLNGDHYTHPDFMLYDALDVYLYMDPMCLDAFPKLYCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        247 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e.g. for imaging, monitoring treatment,
                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                  98WO-US10088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    peptide;
                                                                                                                                                                                                                                                                 GI tract
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      English.
                                                                                                                                                                                         therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 1179; DB 20;
Pred. No. 4.7e-113;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and immobilisation.
                                                                                                                                                                                                                                                                               binding protein; hSI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tissue analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                pectoris;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ဝ္ဂ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
RESULT 11
AAW74112
Š
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   receptors human intestinal peptide-associated transporter (HPTI).

ApperII, D2H and human sucrose-isomaltase complex (hSI). (I) provide active transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, cancer, migraine, or angina pectoris. Specifically they are used to deliver insulin or leuprolide, but many other suitable therapeutic agents are disclosed, including genes or inhibitory nucleic acid, imaging agents and antigens: (I) may also provide targeting to the GI tract. Other uses of (I) are: (i) to determine the level of specified receptors in a sample fina binding assay); and (ii) to screen for molecules that bind (I). Immunogenic analogues or derivatives of (I) are used to raise antibodies and in immunoassays. The antibodies are used to locate, detect and measure (I), e.g. for imaging, monitoring treatment, tissue analysis
                                                             GST/GI transport
                                                                                                                                                              AAW74112 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        measure (I), e.g. for imaging, mountains etc., also for peptide purification and immobilisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         glutathione-S-transferase and a gastro-intestinal transport protein binding peptide. The invention relates to purified proteins (I) that specifically to at least one of the gastro-intestinal (GI) tract
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                              04-MAY-1999
                                                                                                                                AAW74112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alvarez VL,
Omahony DJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1999-009568/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (CYTO-) CYTOGEN CORP.
                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ᆫ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                  KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMLKWFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                         GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence
                                                                                                                                                                                                                                                                                                                                                                                    GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                   DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Page 209; 294pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            247 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%;
ilarity 100.0%;
Conservative (
                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Belinka BA,
Patterson CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             represents a fusion protein between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97US-0046595
                                                           receptor binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cagney GM,
Singleton
                                                                                                                                                               248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1179; DB 20;
Pred. No. 4.7e-113;
                                                                                                                                                               ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                             protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Carter
J;
                                                         fusion sequence.
                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            that bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
```

Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex

hypertension;

COMPI

```
Š
                                                                                                                     밁
                                                                                                                                                             δõ
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cc glutathlone-s-transferase and a gastro-intestinal transport protein countries to binding peptide. The invention relates to purified proteins (I) that bind specifically to at least one of the gastro-intestinal (GI) tract receptors human intestinal peptide-associated transporter (HPT1), (CI) provide cactive transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, cancer, migraine, or angina pectoris. Specifically they are used to cancer, migraine, or angina pectoris. Specifically they are used to cancer, migraine, or angina pectoris. Specifically they are used to cancer, migraine, or angina pectoris. Specifically they are used to cancer insulin or leuprolide, but many other suitable therapeutic agents could antigens. (I) may also provide targeting to the GI tract. Other uses of (I) are: (1) to determine the level of specified receptors in a sample (In abinding assay); and (ii) to screen for molecules that bind (I). CI immunogenic analogues or derivatives of (I) are used to raise antibodies and in immunossays. The antibodies are used to locate, detect and conceptors in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample conceptor in a sample concep
                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This sequence represents a fusion protein between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1999-009568/01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CYTO-) CYTOGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO9851325-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris; therapeutic agent delivery; therapy; fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example; Page 215–216; 294pp; English.
                           181
                                                                        181
                                                                                                                        121
                                                                                                                                                                     121
                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                    13
                                                                                                                                                                                                                                                                                                                 1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                          1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                              DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                  GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                    | KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                           KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                        DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             248 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Belinka BA, (
Patterson CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORP PLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97US-0046595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98WO-US10088
                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 1179; DB 20; 100.0%; Pred. No. 4.8e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cagney GM,
, Singleton
                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Carter
J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       M,
                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                             248;
                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ö,
                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                0;
Š
                                               В
```

```
This sequence represents a fusion protein between
CC glutathione-S-transferase and agastro-intestinal transport protein
CC binding peptide. The invention relates to purified proteins (I) that bind
CC specifically to at least one of the gastro-intestinal (GI) tract
CC receptors human intestinal peptide-associated transporter (HPTI).
CC hPEPTI, D2H and human sucrose-isomaltase complex (hSI). (I) provide
CC active transport of therapeutic agents through human and animal GI tissue
CC (into the blood) for in vivo delivery, particularly for treatment or
CC prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia,
CC cancer, migraine, or angina pectoris. Specifically they are used to
CC deliver insulin or leuprolide, but many other suitable therapeutic agents
CC are disclosed, including genes or inhibitory nucleic acid, imaging agents
CC and antigens. (I) may also provide targeting to the GI tract. Other uses
CC of (I) are: (i) to determine the level of specified receptors in a sample
CC immunogenic analogues or derivatives of [I) are used to raise antibodies
CC and in immunoassays. The antibodies are used to locate, detect and
CC measure (I), e.g. for imaging, monitoring treatment, tissue analysis
CC etc., also for peptide purification and immobilisation.
                             Š
                                                                 Matches
                                                                                Query Match
Best Local s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alvarez VL,
Omahony DJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gastro-intestinal transport receptor; binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GST/GI transport receptor binding protein fusion sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAW74113 standard; peptide;
                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (CYTO-) CYTOGEN CORP. (ELAN-) ELAN CORP PLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       therapeutic agent delivery; therapy; fusion protein
ш
                1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                 218;
                                                                                  Similarity
                                                                                                                                     248 AA;
                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Belinka BA,
Patterson CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             216; 294pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97US-0046595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98WO-US10088
                                                                                  100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cagney GM,
, Singleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      248
                                                                 0;
                                                                                  Score 1179; DB 20;
Pred. No. 4.8e-113;
                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Carter
J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein;
                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lambkin
                                                                 Indels
                                                                                                 Length
                                                                 0,
                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ဝူ
                                  60
60
```

밁

61 61

GDVKLTOSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV

120

100.0%;

```
RESULT 13
AAW74121
                                                      CC glutathione-S-transferase and a gastro-intestinal transport protein CC plotding peptide. The invention relates to purified proteins (I) that bind CC specifically to at least one of the gastro-intestinal (GI) tract CC receptors human intestinal peptide-associated transporter (HPTI), CC hPEPTI, D2H and human sucrose-isomaltase complex (hSI). (I) provide CC active transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or CC prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, CC cancer, migraine, or angina pectoris. Specifically they are used to CC deliver insulin or leuprolide, but many other suitable therapeutic agents CC are disclosed, including genes or inhibitory nucleic acid, imaging agents CC and antigens. (I) may also provide targeting to the GI tract. Other uses of (I) are: (1) to determine the level of specified receptors in a sample CC (in a binding assay); and (ii) to screen for molecules that bind (I). CC Immunogenic analogues or derivatives of (I) are used to raise antibodies and immunoassays. The antibodies are used to raise antibodies are used to locate, detect and CC measure (I), e.g. for imaging, monitoring treatment, tissue analysis cc., also for peptide purification and immobilisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ij
 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris; therapeutic agent delivery; therapy; fusion protein.
                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                     New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used toldeliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CYTO-)
                                                                                                                                                                                                                                                                                                                                                                     This sequence represents a fusion protein between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GST/GI transport receptor binding protein fusion sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAW74121 standard;
                                                                                                                                                                                                                                                                                                                                                                                                      Example; Page 222; 294pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Omahony
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alvarez
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9851325-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           βĹ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CYTOGEN CORP.
                                   248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Belinka BA, co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORP PLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97US-0046595.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98WO-US10088.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                peptide;
 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cagney GM,
, Singleton
Score 1179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Carter JM,
J;
DB
20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lambkin
Length 248;
                                                                                                                                                                                                                                                                                                                                                                                                                                  c agents to,
leuprolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ĮĮ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
```

```
RESULT 14
AAW74122
       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
Matches 218; Conserv
This sequence represents a fusion protein between glutathione-5-transferase and a gastro-intestinal transport protein binding peptide. The invention relates to purified proteins (I) that bind specifically to at least one of the gastro-intestinal (GI) tract receptors human intestinal peptide-associated transporter (HPT1), hPEPT1, D2H and human sucrose-isomaltase complex (hSI). (I) provide active transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, cancer, migraine, or angina pectoris. Specifically they are used to deliver insulin or leuprolide, but many other suitable therapeutic agents are disclosed, including genes or inhibitory nucleic acid, imaging agents
                                                                                                                                                                                                                                                                                                                                                                                             Alvarez
Omahony
                                                                                                                                                                                                                                    Example; Page 222-223; 294pp; English.
                                                                                                                                                                                                                                                                 New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                                                                                                                                                                                                                                                              WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GST/GI transport receptor binding protein fusion sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW74122 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9851325-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 therapeutic agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                (CYTO-) CYTOGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Н
                                                                                                                                                                                                                                                                                                                                                              1999-009568/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KRIEAIPOIDKYLKSSKYIAWPLOGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDEMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                             Belinka BA, (Patterson CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97US-0046595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98WO-US10088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              delivery; therapy; fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                             Cagney GM,
                                                                                                                                                                                                                                                                                                                                                                                               Singleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 4.8e-113; 
mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                             Carter JM,
J;
                                                                                                                                                                                                                                                                                                                                                                                                             Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                             ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                      or,
```

```
RESULT 15
AAW74100
ID AAW74
XX AAW74
XX AAW74
XX AAW74
XX AAW74
XX Gastr
KW D2H;
KW Lintes
KW Costec
KW Costec
KW Lintes
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HOMO
XX HO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and antigens. (I) may also provide targeting to the GI tract. Other uses of (I) are: (i) to determine the level of specified receptors in a sample (in a binding assay); and (ii) to screen for molecules that bind (I). Immunogenic analogues or derivatives of (I) are used to raise antibodies and in immunoassays. The antibodies are used to locate, detect and measure (I), e.g. for imaging, monitoring treatment, tissue analysis etc., also for peptide purification and immobilisation.
                                                                                                                                                                                                                                                                                       Alvarez
Omahony
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                      New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras antibodies, used to deliver therapeutic or diagnostic agents through, the gastrointestinal tract, e.g. insulin or leuproli
                                                                                                                                                                                                                                                                                                                                                                     (CYTO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pecto;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GST/GI transport receptor binding protein fusion sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW74100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW74100 standard; peptide;
                                                        Example;
                                                                                                                                                                                                                                                                                                                                                                                                                                              15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9851325-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           therapeutic agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GDVKLTOSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1999-009568/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDFMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                     CYTOGEN CORP.
                                                   Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     248 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                       Belinka BA, (Patterson CA,
                                                     207; 294pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                              97US-0046595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98WO-US10088
                                                                                                                                                                                                                                                                                                                                                                     PLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     delivery; therapy; fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
                                                                                                                                                                                                                                                                                       Cagney GM,
, Singleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1179; DB 20;
Pred. No. 4.8e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                       Carter
J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                     Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                        and
to,
ide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pectoris;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    in a sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

sequence

represents

œ

fusion protein

between

```
CC plutathione-S-transferase and a gastro-intestinal transport protein CC binding peptide. The invention relates to purified proteins (I) that bind CR specifically to at least one of the gastro-intestinal (GI) tract receptors human intestinal peptide-associated transporter (HPT1), CR provide CC cative transport of therapeutic agents through human and animal GI tissue CC (into the blood) for in vivo delivery, particularly for treatment or CC prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, CC cancer, migraine, or angina pectoris. Specifically they are used to CC deliver insulin or leuprolide, but many other suitable therapeutic agents and antigens. (I) may also provide targeting to the GI tract. Other uses CC and an immunoasays, and (ii) to screen for molecules that bind (I). CI manogenic analogues or derivatives of (I) are (i) to determine the level of specified receptors in a sample CC and in immunoasays. The antibodies are used to locate, detect and CC measure (I), e.g. for imaging, monitoring treatment, tissue analysis CC etc., also for peptide purification and immobilisation.
Sequence
  248 AA;
```

```
Query Match
Best Local S
Matches 218
                                                                              121
             181
                                             121
                                                                                                            61
                                                                                                                                           61
KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                             DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                             GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                        MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                              GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                            DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                          218;
                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                        100.0%; Score 1179; DB 20; 100.0%; Pred. No. 4.8e-113;
                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                    ٠
نر
                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                          Gaps
                                                                                                              120
```

Length 248;

0

Search completed: May 20, Job time: 18.4058 secs 2003, 11:33:54 Ş 밁 QΥ 밁 Š 뫄 δÃ

181

KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK

Run

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Searched:
                                                                                                                                                                                                                                                                                                                                               ĕ
                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed,
                                                                                                                                                                                                                                                                                                                                                                                                      and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq length:
seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Issued_Patents_AA:*
1: /cgn2_6/ptodata/2
2: /cgn2_6/ptodata/2
3: /cgn2_6/ptodata/2
4: /cgn2_6/ptodata/2
5: /cgn2_6/ptodata/2
6: /cgn2_6/ptodata/2
                                                                                                                                                                                                                                                                                                                                            Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                May 20, 2003, 11:30:54; Search time 7.02587 Seconds (without alignments) 912.939 Million cell updates/sec
                           1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
1000.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-081-408-4
1179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            262574 segs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSPILGYWKIKGLVQPTRLL.....IAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.5
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                  /cgn2_6/ptodata/2/1aa/5A_COMB.pep:*
/cgn2_6/ptodata/2/1aa/5B_COMB.pep:*
/cgn2_6/ptodata/2/1aa/6A_COMB.pep:*
/cgn2_6/ptodata/2/1aa/6B_COMB.pep:*
/cgn2_6/ptodata/2/1aa/B_COMB.pep:*
/cgn2_6/ptodata/2/1aa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000000000
                                      218
231
231
231
232
232
232
272
272
272
282
307
307
307
331
331
354
442
442
442
442
443
                                                                                                                                                                                                                                                                                                                                             멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gapext 0.5
           US-08-470-837-26
US-08-129-722A-26
US-08-327-874A-6
US-08-327-874A-6
US-08-310-820-6
US-08-910-820-6
US-08-910-820-6
US-08-910-820-6
US-08-910-820-6
US-08-216-894-6
US-08-215-746-6
US-08-395-507-1
US-08-395-507-1
US-08-395-507-2
US-08-395-507-2
US-08-395-507-2
US-08-397-244-11
PCT-US94-09700-34
US-08-377-248-7
US-08-377-248-7
US-08-38-506-2968-7
US-08-506-2968-7
                                                                                                                                                                                                                                                                                                                                            Ħ
                                                                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                          Description
                                                                                                                                 sequence
sequence
sequence
sequence
            Sequence
Sequence
Sequence
                                              Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                          Sequence
Sequence
                                                                                                                                                                                Sequence
Sequence
Sequence
                                                                                                                                                                                                                    Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                   Sequence
                                                         6, Appli
6, Appli
6, Appli
6, Appli
6, Appli
6, Appli
6, Appli
6, Appli
6, Appli
6, Appli
11, Appli
Š
```

	45	4	4 3	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	
	1179	1179	1179	1179	1179	1179	1179	1179	1179	1179	1179	1179	1179	1179	1179	1179	1179	1179	
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
	643	643	635	632	579	564	564	559	547	545	542	538	536	530	517	515	514	472	
	4	N	4	4	N	4	N	4	4	4	4	4	w	4	4	4	4	4	
AT TOWNSHIP	US-09-115-746-8	US-08-216-894-8	US-08-506-296B-71	US-08-506-296B-74	US-08-864-224-11	US-09-115-746-2	US-08-216-894-2	-506-296B-6	-506-2961	-506	US-08-506-296B-69	US-08-974-549A-602	US-08-974-180-20	US-08-974-549A-603	US-08-974-549A-606	US-08-974-549A-604	US-08-974-549A-605	US-09-115-746-10	
	Sequence 8, Appli	Sequence 8, Appli	Sequence 71, Appl	74,	Sequence 11, Appl	Sequence 2, Appli	2, A	66,			69, ;	602,	20, #	603,	Sequence 606, App	604,	Sequence 605, App	Sequence 10, Appl	

ALIGNMENTS

```
REFERENCE/DOCKET NUMBER: 34,051
TELECOMMUNICATION INFORMATION:
TELEPHONE: 310-445-1140
TELEPHONE: 310-445-9031
INFORMATION FOR SEQ ID NO: 26:
SEQUENCE CHARACTERISTICS:
LENGTH: 218 amino acids
TYPE: amino acids
TYPE: amino acids
TYPE: linear
MOLECULE TYPE:
                                                                               ; MOLECULE TYPE: protein US-08-470-837-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 1
US-08-470-837-26
  Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Merchant & Gould
STREET: 11150 Santa Monica Boulevard, Suite
CITY: Los Angeles
STATE: California
COUNTRY: USA
ZIP: 90025-3395
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/470,837
FILING DATE:
CITATION STATEM: US/08/470,837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Ninni, Marcel E.
APPLICANT: Hall, Frederick L.
APPLICANT: Tuan, Tai-Lan
APPLICANT: Wu, Lingtao
APPLICANT: Cheung, David T.
TITLE OF INVENTION: Transformit
TITLE OF INVENTION: Their Use i
                                                                                                                                                                                                                                                                                               CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Sharp, Janice A.
REGISTRATION NUMBER: 34,0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Application US/08470837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E: Merchant & Gould 11150 Santa Monica Boulevard, Suite 400
  100.0%; ilarity 100.0%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
Their Use in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Transforming Growth Factor B Fusion
    0
                                                                                                                                                                                                                                                                               30630-1US01
Score 1179; DB 1;
Pred. No. 2.3e-117;
Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wound Healing
                                                                                                                                                                                                                                                                                                                                                                                                                                     #1.30
                                  Length 218;
  Indels
  0;
Gaps
```

```
Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: PRT
; ORGANISM: Human
US-08-868-452-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-868-452-26
                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                              US-08-129-722A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/08/868,452C
CURRENT FILING DATE: 1997-06-03
NUMBER OF SEQ ID NOS: 51
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 26
LENGTH: 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Marcel E. Nimni
APPLICANT: Frederick L. Hall
                                    Sequence 2, Application US/08129722A
Patent No. 6303369
GENERAL INFORMATION:
APPLICANT: Spana, Carl
APPLICANT: Fargnoli, Joseph
APPLICANT: Bolen, Joseph B.
TITLE OF INVENTION: PROTEIN EXPRESSION SYSTEM
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pequence 26, Application US/08868452C Patent No. 6352972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: BONE MORPHOGENETIC PROTEINS AND THEIR TITLE OF INVENTION: USE IN BONE GROWTH FILE REFERENCE: 17972-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Lingtao Wu
APPLICANT: Bo Han
APPLICANT: Edwin Shors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                          181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                    121 DFLSKLPEMIKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
ADDRESSEE: bu
                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7 Match 100.0%; Score 1179; DB 4; Length Local Similarity 100.0%; Pred. No. 2.3e-117; Nes 218; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KRIEAIPQIDKYLKSSKYIAWPLOGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                              DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                        GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                     KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
           Burton Rodney
O. Box 4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
; LENGTH: 231 amino acids
; TYPE: maino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-129-722A-2
                                                                                                                                                                                                                                                                                                                                                     RESULT 4
US-08-327-874A-6
                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                     Sequence 6, Application US/08327874A Patent No. 6372249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                GENERAL INFORMATION:

APPLICANT: BAYLOR COLLEGE OF MEDICINE
APPLICANT: SMITH, JAMES R.

APPLICANT: DRUTZ, DAVID J.

APPLICANT: WILSON, DEBORAH R.

APPLICANT: ZUMSTEIN, LOUIS

APPLICANT: ZUMSTEIN, LOUIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 609) 252-4526
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 231 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Gaul, Timothy J.
REGISTRATION NUMBER: 33,111
REFERENCE/DOCKET NUMBER: DC25
TELECOMMUNICATION INFORMATION:
TELEPHONE: (609) 252,5901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/129,722A
                                                                                                                                                                        TITLE OF INVENTION: TITLE OF INVENTION: NUMBER OF SEQUENCES:
COMPUTER READABLE FORM:
.MEDIUM TYPE: Floppy disk
.COMPUTER: IBM PC compatible
.COMPUTER: DOS/MS-DOS
                                                                                                                                             CORRESPONDENCE ADDRESS:
ADDRESSEE: ROGERS &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                   181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Princeton
STATE: New Jers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 GDYKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                        ADDRESSEE: ROGERS & WELL
STREET: 200 PARK AVENUE
CITY: NEW YORK
STATE: NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                               COUNTRY: UZIP: 10166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
les 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New Jersey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       609)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                               USA
                                                                                                                                                                         SENESCENT CELL DERIVED INHIBITORS
DNA SYNTHESIS
36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 1179; DB 4; Length 231; 100.0%; Pred. No. 2.5e-117;
                                                                                                                                             & WELLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DC25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

```
Ş
                                                            В
                                                                                        Š
                                                                                                                         밁
                                                                                                                                                   ρ
                                                                                                                                                                                       B
                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                  US-08-327-874A-6
                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                    IMMEDIATE SOURCE:
CLONE: GST
                                                                                                                                                                                                                                                                                                                                                                            ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US OF FILING DATE: 17-NOV-1993 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0'
APPLICATION NUMBER: US 0'
FILTING DATE: 16-DEC-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 36,621
REFERENCE/DOCKET NUMBER: 36
FELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 878-3148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 30-AUG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RIOR APPLICATION DATA:
181
                             181
                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TILING DATE: 24-OCT-1994
TTORNEY/AGENT INFORMATION:
                                                                                                                         51
                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 0:
FILING DATE: 13-JUL-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 0' FILING DATE: 02-NOV-1992
                                                                                                                                                                                                                                                                                                                                                              ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: PCT US94/09700 FILING DATE: 26-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 0
FILING DATE: 25-FEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENGTH:
                                                                        DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                      GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                   MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
              KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                         DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                       GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                  MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NORTON,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     232 amino acids
                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (212)
                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                           Schistosoma japonicum
                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-APR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GERARD P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       878-8375
                                                                                                                                                                                                                                                               100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 08/229,420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08/327,874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US 08/153,564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US 08/113,372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US 07/970,462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/327,874A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US 08/274,535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         us 08/203,535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07/808,523
                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                               Score 1179; DB 4;
pred. No. 2.6e-117;
0; Mismatches 0;
                                                                                                                                                                                                                                                                            Length 232;
                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                             Gaps
                                                         180
                                                                                                                    120
                                                                                                                                                                                    60
                                                                                                                                                                                                                                                 0
```

```
PCT-US94-09700-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 5
PCT-US94-09700-6
Query Match
Best Local S
Matches 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 6, Application PC/TUS9409700 GENERAL INFORMATION:
                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO:
                                                                                IMMEDIATE SOURCE:
CLONE: GST
                                                                                                              ORIGINAL SOURCE:
ORGANISM: Sch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 232 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 17-NOV-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Rel CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: AUERBACH, JEFFREY I
                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 16-DEC-
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION:
                                                                                                                                              HYPOTHETICAL:
                                                                                                                                                                                                                                                                                       FELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
COEFFEDERS DE CONTRACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: 1299 PEN
CITY: WASHINGTON
               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 0 FILING DATE: 15-APR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/153,564 FILING DATE: 17-NOV-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                           TYPE: amino acid
                                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                           LECULE TYPE:
                                                                                                                                                                              COPOLOGY:
                                                                                                                                                                                                                                                                          ELEPHONE:
                                                                                                                                                                                                            232 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1299 PENNSYLVANIA AVENUE, N.W
                                                                                                                                                                                                                                                          (202)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BAYLOR COLLEGE OF MEDICINE SMITH, JAMES R.
                                                                                                            Schistosoma japonicum
                                                                                                                                            : protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HOWREY & SIMON
                                                                                                                                                                                                                                                                                                                                                                           13-JUL-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-FEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JMBER: US 08/113,372
30-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JMBER: US 07/970,462
02-NOV-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-DEC-1991
                                                                                                                                                                                                                                                          383-6610
                                                                                                                                                                                                                                                                          383-7451
               100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA SYNTHESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SENESCENT CELL DERIVED INHIBITORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                      US 08/274,535
                                                                                                                                                                                                                                                                                                                                                                                                                                     US 08/229,420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US 08/203,535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PCT/US94/09700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US 07/808,523
                                                                                                                                                                                                                                                                                                                     32,680
                                                                                                                                                                                                                                           6
                                                                                                                                                                                                                                                                                                           225-102-CIP7-PCT
               Score 1179; DB 5; Pred. No. 2.6e-117;
 Mismatches
                               Length
0
Gaps
```

B Š

MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID

60

0;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        용
                           Š
                                                          밁
                                                                                    ρý
                                                                                                                       밁
                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-910-820-4
밁
                                                                                                                                                                                   Query Match
Best Local S
Matches 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Patent No. 6258579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: Mercurio, Frank
APPLICANT: Zhu, Hengyi
                                                                                                                                                                                                                                                                                                                                              TELEFAX: (206) 682-60 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/910,820
                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: MAKL DAVIG J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: MUTTAY, Brion W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
TITLE OF INVENTION: COMPLEX AND METHODS OF USE THEREFOR
NUMBER OF SEQUENCES: 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                           TELECOMMUNICATION INFORMATION: TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
121
                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 12 CLASSIFICATION:
                                                          13
                                                                                         19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: Seattle
                                                                                                                                                                                Match 100.0%; Score 1179; DB 4; Local Similarity 100.0%; Pred. No. 3.2e-117; es 218; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                STRANDEDNESS
TOPOLOGY: 1
                                                                                                                        ᆫ
                                                                                                                                                                                                                                                                                                               LENGTH:
                                                                                                                                                      1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                           GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                          GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION:
                                                                                                                                                                                                                                                                                               amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/08910820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                 272 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2hu, Hengyi
                                                                                                                                                                                                                                                                                                                                                              (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Barbosa, Miguel
                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12-AUG-1997
N: 435
                                                                                                                                                                                                                                                                                                                                                              682-6031
                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Version
                                                                                                                                                                                                                  Length 272;
                                                                                                                                                                                     Indels
                                                                                                                                                                                   0;
                                                                                                                                                                                   Gaps
180
                                                                                                                                                                                   0;
```

```
ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 7
US-08-910-820-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                          γQ
                                                                                                                                                                                                                        밁
                                                                                                           8
                                                                                                                                  δÃ
                                                                                                                                                                 밁
                                                                                                                                                                                                                                                 Š
RESULT 8
US-08-910-820-3
                                                     멍
                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                     US-08-910-820-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                Matches 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (206) 682-6031 INFORMATION FOR SEQ ID NO: 6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY AGENT INFORMATION:
NAME: Maki, David J
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 6600
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: L1, Gian
APPLICANT: Murray, Brion W.
TITLE OF INVENTION: STIMULUS-IND
TITLE OF INVENTION: COMPLEX AND
NUMBER OF SEQUENCES: 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/01
FILING DATE: 12-AUG-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE: war.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                     181
                                                                                181
                                                                                                           121
                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MC-SOFTMARP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn Release #1.0, Version
                                                                                                                                                                             61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid
                                                                                                                                                                                                                       LENGTH: 272 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                          DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                           KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                  GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/08910820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zhu, Hengyi
                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mercurio,
                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Floppy disk
                                                                                                                                                                                                                                                                              100.0%; Score 1179; DB 4; 100.0%; Pred. No. 3.2e-117; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STIMULUS-INDUCIBLE PROTEIN COMPLEX AND METHODS OF USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/08/910,820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fifth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Avenue
                                                                                                                                                                                                                                                                                                        Length 272;
                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                              Gaps
```

```
밁
                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                 US-08-910-820-5
                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-910-820-3
                                                                                                  Sequence 5, Application US/08910820 Patent No. 6258579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION UNMBER: 31,392
REFERENCE/DOCKET NUMBER: 8600
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: (206) 682-6031 :NFORMATION FOR SEQ ID NO: 3: SEQUENCE CHARACTERISTICS:
                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: COMPLEX AND
                          PPLICANT
                                                                                                                                                                                                 181
                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         UMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                     Local Similarity
nes 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/0
FILING DATE: 12-AUG-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                    1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENGTH:
                                                                                                                                                                                                                 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                           DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                              KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                          DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                   MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3, Application US/08910820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              282 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murray, Brion W
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zhu, Hengyı
    Murray, Brion W
                                                                 Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Barbosa, Miguel
                                    Barbosa, Miguel
                                                 Zhu, Hengyi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mercurio, Frank
                      Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 1179; DB 4; 100.0%; Pred. No. 3.3e-117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US/08/910,820
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                       RESULT 10
US-08-216-894-6
                                                                                                                                                                                                                         Sequence 6, Applic Patent No. 5876734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION:
                                                                                                               CORRESPONDENCE ADDRESS:
                                                  COUNTRY:
                                                         STREET: 3000 K SLE
CITY: Washington,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                              ADDRESSEE: Foley & Lardner STREET: 3000 K Street, N.W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               relephone:
                                    20007-5109
```

```
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/08/910
FILING DATE: 12-AUG-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Mak1, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 8600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: PATENT PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
TITLE OF INVENTION: POLYPEPTIDES FOR DIAGNITITLE OF INVENTION: WITH TRYPANOSOMA CRUZI NUMBER OF SEQUENCES: 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
LENGTH: 282 amino acid
                                                          APPLICANT: Kirchhoff, Louis V. APPLICANT: Otsu, Keiko
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino a
STRANDEDNESS:
TOPOLOGY: 111
                                                                                                                                                                                                                                                  181 KRIEAIPQIDKYLKSSKYIAWPLOGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                            121 DFLSKLPEMIKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                              181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                      121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                            61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                               61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDEETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
es 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amino acid
                                                                                                                                   Application US/08216894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             282 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              682-6031
, 682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                        POLYPEPTIDES FOR DIAGNOSING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/08/910,820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1179; DB 4;
Pred. No. 3.3e-117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                701 Fifth Avenue
                                            INFECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
```

Z.W.

```
RESULT 11
US-09-115-746-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-216-894-6
                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 6, Application US/0911574
Patent No. 6228601
GENERAL INFORMATION:
APPLICANT: Kirchhoff, Louis V.
APPLICANT: Otsu, Keiko
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 218; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 307 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/06
FILING DATE: 24-MAR-1994
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,7
                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: (202)672-5300
TELEFAX: (202)672-5399
                                                                                                                                     SOFTWARE: Patentin Release #1.0, Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION DATA:
                             ATTORNEY/AGENT INFORMATION:
                                                                                    FILING DATE: PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: POLYPEPTIDES FOR DIAGNOSING INFECTION TITLE OF INVENTION: WITH TRYPANOSOMA CRUZI
                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (202
TELEX: 904136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE:
REGISTRATION NUMBER:
                                                                  APPLICATION NUMBER:
                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                20007-5109
                                                                                                                                                                                                                                                                             Washington, D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/09115746
                                                                                                                                                                                                                                                                                              E: Foley & Lardner
                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PatentIn Release #1.0, Version #1.25
            Stephen A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/08/216,894
                                                                                                                     US/09/115,746
                                                                   08/216,894
29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85326/102/DRLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1179; DB 2; Pred. No. 3.8e-117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
```

```
Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γg
                               Ş
                                                                   밁
                                                                                                                                                                                                           ; OTHER INFORMATION:
; OTHER INFORMATION:
US-09-217-228-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; MOLECULE TYPE: protein US-09-115-746-6
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-217-228-6
                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/217,228
CURRENT FILING DATE: 1998-12-21
NUMBER OF SEQ ID NOS: 35
SOFTWARE: PATENTIN VET. 2.0
SEQ ID NO 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Loc
Matches
                                                                                                                                      Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 6, Application US/09217228 Patent No. 6323178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Butler, Jon P.
APPLICANT: Hale, John E.
APPLICANT: Heath Jr., William F.
APPLICANT: Schoner, Brigitte E.
APPLICANT: Heiman, Mark L.
APPLICANT: Becker Geelle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE: (202)672-5399
TELEFAX: (202)672-5399
TELEX: 904136
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Becker, Gerald W.
APPLICANT: Varshavsky, Alexander D.
TITLE OF INVENTION: Beta-lipotropin and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE: X-12139
                                                                                                                                                                                                                                                                            LENGTH: 331
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 307 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: 85
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
TELEPHAX: (202)672-5309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
nes 218; Conserv
61
                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                  GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                          Description of Artificial Sequence: GST fusion partner
                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 1179; DB 4; 100.0%; Pred. No. 3.8e-117; tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>ن</u>
                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 85326/102/DRLC
                                                                                                                                      Score 1179; DB 4;
Pred. No. 4.2e-117;
; Mismatches 0;
                                                                                                                                                                       Length 331;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 307;
                                                                                                                                         Indels
                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                     60
```

0:

```
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
US-08-395-507-1
Ş
                                 В
                                                               Ş
                                                                                                                                                                         US-08-395-507-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, here No. 557845
                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: (202) 293-62
NFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Patentin Release #1.0, Version #1.30 CARRENT APPLICATION DATA: APPLICATION NUMBER: US/08/395,507 FILING DATE: 27-FEB-1995 CLASSIFICATION: 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
LENGTH: 352 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 28-FEB-1995
ATTORNEY/AGENT INFORMATION:
NAME: AMEINICK, BUTCO A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                         ANTI-SENSE: NO ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION: TELEPHONE: (202) 331-7111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP Hei-6-54672
FILING DATE: 28-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                         IYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                      COTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                    Local Similarity
les 218; Conserv
                                                                                                                                                                                                                         NAME/KEY:
                                                                                                                                                                                                                                                         ORGANISM:
                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                          LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER: 24,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                   1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLIMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20036
                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/08395507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E: Pollock, Vande Sande & Priddy 1990 M Street, NW, Suite 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fujii, No. 5578456uyuki
Okada, Masahisa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ueno, Eiichi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fujimura, Katsuya
                                                                                                    Conservative
                                                                                                                                                                                                         Protein
1..352
                                                                                                                                                                                                                                                         rabbit
                                                                                                                                                                                                                                                                                                                                           not relevant
                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                           protein
                                                                                                                                                                                                                                                                                                                                                                                                                                              293-6229
                                                                                                   100.0%; Score 1179; DB 1; 100.0%; Pred. No. 4.5e-117; tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Immunoassay
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Anti-treponema Pallidum Antibody
                                                                                                                                                                                        /note= "G15 Antigen"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24,852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1581/007
                                                                                                                                    Length 352;
                                                                                                    Indels
                                                                                                    0
                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                   60
                                                                                                    0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 14
US-08-216-894-4
                             Š
                                                                   Вb
                                                                                                   Š
                                                                                                                                       Вþ
                                                                                                                                                                       Ş
                                                                                                                                                                                                           В
В
                                                                                                                                                                                                                                                                                                                                                     US-08-216-894-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent No. 587673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 4,
                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Kirchhoft, Louis v.
APPLICANT: Otsu, Keiko
TITLE OF INVENTION: POLYPEPTIDES FOR DIAGNO
TITLE OF INVENTION: WITH TRYPANOSOMA CRUZI
NUMBER OF SEQUENCES: 10
                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 354 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/08
FILING DATE: 24-MAR-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
181
                               181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                   121
                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTY: Washington,
                                                                                                                                                        61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: BENT, Stephen A. REGISTRATION NUMBER: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                              1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDEMLYDALDVVLYMDPMCLDAFPKLVGFK 180
                                                                                                                                                                                                           MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                       GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                       amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/08216894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: Foley & Lardner
3000 K Street, N.W., Suite 500
ashington, D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                         354 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               : (202)672-5300
(202)672-5399
                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                             100.0%; Sc
100.0%; Pr
ative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLYPEPTIDES FOR DIAGNOSING INFECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/08/216,894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                            4..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    85326/102/DRLO
                                                                                                                                                                                                                                                                               Score 1179; DB 2;
Pred. No. 4.6e-117;
); Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #
                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                      354;
                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120
                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                   0
```

```
밁
                                                                                                                  ş
                                                                                                                                                         밁
                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                      Вb
Search completed: May 20, 2003, 11:40:56
Job time : 8.02587 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; MOLECULE TYPE: protein US-09-115-746-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 15
US-09-115-746-4
                                                                                                                                                                                                                                                                                                                                                                                            Query Match 100.0%; Score 1179; DB 4; Best Local Similarity 100.0%; Pred. No. 4.6e-117; Matches 218; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 4, Application US/09115746 Patent No. 6228601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 354 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 85326/102/DRLO
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
TELEPHONE: (202)672-5399
TELEPHON: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/09/115,746
FILING DATE:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/216,894
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: DC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Kirchhoff, Louis V.
APPLICANT: OCSU, Kełko
TITLE OF INVENTION: POLYPEPTIDES FOR DIAGNOSING INFECTION
TITLE OF INVENTION: WITH TRYPANOSOMA CRUZI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES: 1
                                                                                                                                                   121 DFLSKLPEMIKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELLEFAX: (L. TELLEFAX: 904136
                                                                          181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                 181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                        121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                             MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SSEE: Foley & Lardner
T: 3000 K Street, N.W., Suite 500
Washington, D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 354;
                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                          Gaps
```

0;

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                    Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                          score greater than
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
8
                                                                                                                                                                                                                                                                                                                                                                              is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq
                                                                                                                                                                                                                                                                                                                                                                           derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                          is the number of results predicted by ater than or equal to the score of the
              375593 seqs, 99172665 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gapop 10.0 , Gapext 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-081-408-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 May 20, 2003, 11:37:59; Search time 34.7335 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                           10:
12:
14:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Published_Applications_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSPILGYWKIKGLVQPTRLL....IAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                      /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                    Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version (c) 1993 - 2003
01
6
6
6
6
7
10
                                                                                                                                                 10
9
9
                                                                                                                                                                                                              9997
         US-09-844-988-5

US-09-844-988-5

0 US-09-844-908-5

0 US-09-846-908-3

0 US-09-910-600-26

US-10-267-311-25

US-09-924-438-6

US-09-910-600-22

US-09-910-600-23

US-09-910-600-23

US-09-910-600-25
                                                                                                                                                                          US-10-081-408-4

US-10-183-153-7

US-10-267-311-23

US-09-844-988-6

US-09-844-908-6

0 US-09-844-908-6

0 US-09-844-908-6
                                                                                                                                                                                                                                                                                                    Ħ
                                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (without alignments)
622.443 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.1.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                      by chance to have
the result being p
      Sequence 4, Appli
Sequence 23, Appli
Sequence 4, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 5, Appli
Sequence 25, Appli
Sequence 25, Appli
Sequence 27, Appli
                                                                                                                                                                                                                                                                                              Description
                                                                                                                                                                                                                                                                                                                                                                                      ave a
printed,
                       Ş
                                                     밁
                                                                               Ş
                                                                                                                밁
                                                                                                                                        δÃ
                                                                                                                                                                          밁
                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 1
US-10-081-408-4
                                                                                                                                                                                                                                    Matches
                       181
                                                                                                                61
                                                                                                                                                                                                                                      218;
```

45	44	43	42	41	40	3	38	37	36	35	34	ü	32	31	30	29	28	27	26	25	24	23	22	21	20
81.5	83	83	87.5	89	92	94.5	97	99	99	152.5	164.5	165.5	171.5	187.5	187.5	472.5	1144	1149	1176	1179	1179	1179	1179	1179	1179
6.9	7.0	7.0	7.4	7.5	7.8	8.0		8.4			14.0	14.0	14.5	15.9	15.9	40.1	97.0	97.5	99.7	100.0	100.0	100.0	100.0	100.0	100.0
241	2397	1668	359	233	233	412	233	379	240	222	203	222	222	230	222	229	998	218	649	1140	422	412	401	394	364
. 0	10	10	9	10	10	9	10	9	9	9	ဖ	9	9	10	ø	9	9	9	9	ဖ	ø	9	ဖ	10	9
US-09-854-133-204	US-09-815-242-12265	US-09-815-242-5654	US-09-738-626-4895	US-09-765-213A-6	US-09-765-213A-4	US-09-214-592-31	US-09-765-213A-2	US-10-253-007-46	US-09-964-899-23	US-09-784-739-1	US-09-847-208-48	US-09-784-739-5	US-09-784-739-3	US-09-925-301-1318	US-09-784-739-4	US-10-102-806-554	US-10-081-408-20	US-10-081-408-5	US-10-174-784-9	US-09-950-634-4	US-09-824-438-7	US-09-775-964-34	US-10-190-866A-1	US-09-990-578-4	US-09-788-268-14
N	Sequence 12265, A	•	168	σ	Sequence 4, Appli	Sequence 31, Appl	ال الا	Sequence 46, Appl	23,	1,	Sequence 48, Appl	5	, Appl	e	4, 2		20,	Sequence 5, Appli	9			34	-	∙	Sequence 14, Appl

ALIGNMENTS

Sequence 4, Application US/10081408
Patent NO. US20020160482A1
GENERAL INFORMATION:
APPLICANT: Abrahms, n, Lars
APPLICANT: Abrahms, n, Caskin
TITLE OF INVENTION: METHODS FOR PROTEIN PURI
FILE REFERENCE: 13425-053001
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: US/10/081,408
CURRENT FILING DATE: 2001-02-23
PRIOR FILING DATE: 2001-02-23
PRIOR FILING DATE: 2001-02-23
PRIOR FILING DATE: 2001-02-28
NUMBER OF SEQ ID NOS: 20 SEQ ID NO 4
LENGTH: 218
TYPE: PRT
ORGANISM: Schistosoma japonicum
US-10-081-408-4 Query Match Best Local Similarity 1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID Conservative for Windows Version 4.0 100.0%; Score 1179; DB 9 100.0%; Pred. No. 2e-111; FOR PROTEIN PURIFICATION 0; Mismatches 9 Length Indels 218; 0, Gaps 120 60 120 60 0;

```
RESULT 3
US-10-267-311-23
; Sequence 23, Application US/10267311
; Publication No. US20030050469A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-823-153-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature; OTHER INFORMATION: Description of Artificial Sequence: US-09-823-153-7
                                          SOFTWARE: Fas
SEQ ID NO 23
LENGTH: 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/823,153
CURRENT FILING DATE: 2001-07-02
NUMBER OF SEQ ID NOS: 11
SOFTWARE: PatentIn version 3.0
SEQ ID NO 7
LENGTH: 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 7, Application US/09823153 Patent No. US20020025540A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                               APPLICANT: Slegel, Marvin
APPLICANT: Chu, N. Randall
APPLICANT: Mizzen, Lee A.
TITLE OF INVENTION: INDUCTION OF A TH1-LIKE RESPONSE IN VITRO
FILE REFERENCE: 12071/002001
CURRENT APPLICATION NUMBER: US/10/267,311
CURRENT FILING DATE: 2002-10-09
PRIOR APPLICATION NUMBER: US/09/613,303
PRIOR FILING DATE: 2000-07-10
PRIOR FILING DATE: 2000-07-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Hendrick, Joseph
APPLICANT: Vinitsky, Alexander
TITLE OF INVENTION: ISOLATION OF FUNCTIONALLY ACTIVE GAMMA-SECRETASE PROTEIN COMPLEX
TITLE OF INVENTION: METHODS FOR DETECTION OF ACTIVITY AND INHIBITORS THEREOF
FILE REFERENCE: D0004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Bristol-Myers Squibb Company
APPLICANT: Roberts, Susan
APPLICANT: Pak, Roger
                                                                                     PRIOR APPLICATION NUMBER: US 60/143,757
PRIOR FILING DATE: 1999-07-08
NUMBER OF SEQ ID NOS: 55
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Artificial Sequence
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 KRIEAIPQIDKYLKŠSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Match 100.0%; Score 1179; DB 10; Local Similarity 100.0%; Pred. No. 2.2e-111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PS1 PEPTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
; FEATURE:
; OTHER INFORMATION: fusion sequence
US-10-267-311-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 4
US-09-844-988-4
SEQUENCE DESCRIPTION: SEQ ID NO: US-09-844-988-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 4, Application US/09844988 Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                       INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 GDVKLTQSMAIIRYIADKHNMLGGCPKERABISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,988
FILING DATE: 26-Apr-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: MAKI, DAYIG J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 25
                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Seattle
STATE: Washington
                                                                            TYPE: amino acids
                                                                                                                                                       TELEPHONE: (206) 622-49
TELEFAX: (206) 682-6031
                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 08/910,820 FILING DATE: 1997-08-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: SEED and BERRY LLP STREET: 6300 Columbia Center, 701 Fifth Avenue
                                          STRANDEDNESS: <Unknown>
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zhu, Hengyi
Barbosa, Miguel
Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Murray, Brion W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 1179; 100.0%; Pred. No. 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                      4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 9;
!.3e-111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-844-988-6
                                                                                ; SEQUENCE DESCRIPTION: SEQ ID NO: US-09-844-988-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 6, Application US/09844988 Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 100.0%; Score 1179; DB 9; Best Local Similarity 100.0%; Pred. No. 2.7e-111;
  Query Match 100.0%; Score 1179; DB 9; Best Local Similarity 100.0%; Pred. No. 2.7e-111; Matches 218; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                         TELEFAX: (206) 682-6031 INFORMATION FOR SEQ ID NO: 6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ver
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,988
FILING DATE: 26-App-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: MAKI, DAVID J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES: 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218;
                                                                                                                     LENGTH: 272 amino acids
TYPE: amino acid
STRANDEDNESS: <Unknown>
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE: Washington COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 08/910,820 FILING DATE: 1997-08-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zhu, Hengyi
Barbosa, Miguel
Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Murray, Brion W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                     6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                         Length 272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 6
US-09-844-908-4
    밁
                                       Ş
                                                                                                                                                               US-09-844-908-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 4, Application US/09844908
Patent No. US20020151021A1
GENERAL INFORMATION:
APPLICANT: Mercurio, Frank
                                                                                Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO: 4: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/08/910,820

FILING DATE: 12-AUG-1997

ATTORNEY/AGENT INFORMATION:

NAME: Maki, David J.

REGISTRATION NUMBER: 31,392

REFERENCE/DOCKET NUMBER: 860098.4130

TELEPHONE: (206) 622-4900

TELEPHONE: (206) 622-4900

TELEPHONE: (206) 682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              μ.
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,908
FILING DATE: 27-Apr-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: STIMULUS-INDUCIBLE COMPLEX AND METHODS
                                                                                                                                                                                  SEQUENCE DESCRIPTION: SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                    STRANDEDNESS: <Unknown>
TOPOLOGY: linear
                                                                                                                                                                                                                                         TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Seattle
STATE: Washington
                                                                                100.0%; Score 1179; DB 10; llarity 100.0%; Pred. No. 2.7e-111; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Barbosa, Miguel
Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Murray, Brion W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zhu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hengyi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AND METHODS
                                                                                                                                                                                                                                                                                                                                                                                  860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROTEIN KINASE
S OF USE THEREFOR
                                                                                  Indels
                                                                                                                     Length 272;
                                                                                  0
                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
```

```
RESULT 7

US-09-844-908-6

; Sequence 6, Application US/09844908

; Patent No. US20020151021A1

; GENERAL INFORMATION:

: APPLICANT: Mercurio, Frank

: Thu, Hengy1
                               Š
                                                                В
                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
      밁
                                                                                                                                                                                            ; SEQUENCE DESCRIPTION: SEQ ID NO: 6: US-09-844-908-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                           Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
    61
                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13
                                                           APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.41
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,908
FILING DATE: 27-Apr-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MUTTAY, Brion W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
COMPLEX AND METHODS OF USE THEREFOR
GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                      STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                      LENGTH: 272 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: Washington
                                                                                                                                                                                                                                                                                                                     TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OF SEQUENCES:
                                                                                                                             100.0%; ilarity 100.0%; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Barbosa, Miguel
                                                                                                                             0
                                                                                                                          Score 1179; DB 10;
Pred. No. 2.7e-111;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                      860098.413C1
                                                                                                                           Indels
                                                                                                                                                         Length 272;
                                                                                                                           0;
                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                             . 0;
```

```
δÃ
                                                                          Вb
                                                                                                                                                   В
                                                                                                             Ş
                                                                                                                                                                                         γ
                                                                                                                                                                                                                                                                                                            ; SEQUENCE DESCRIPTION: SEQ ID NO: 3: US-09-844-988-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-844-988-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 3, Application US Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                  Matches 218; Conservative
                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
  121
                        121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/910,820
FILING DATE: 1997-08-13
ATTORNEY/AGENT INFORMATION:
NAME: Mak1, David J.
REGISTRATION NUMBER: 31,392
REGISTRATION NUMBER: 860098.413C1
TELEPRENUE: (206) 622-4900
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                 61
                                                                            61
                                                                                                                                                   1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                         1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,988
FILING DATE: 26-Apr-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                          GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 282 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE: Washington COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Application US/09844988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET: 6300 Columbia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Murray, Brion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     i, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hengyi
                                                                                                                                                                                                                                  100.0%; Score 1179; DB 9; 100.0%; Pred. No. 2.8e-111; tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    701 Fifth Avenue
                                                                                                                                                                                                                                                                        Length 282;
                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                Gaps
```

```
Ş
                                                                                                      Ş
                                                                                                                                               밁
                                                                                                                                                                            δÃ
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 吊
       밁
                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 9
US-09-844-988-5
                                                                                                                                                                                                                                                                                                                                                          ; SEQUENCE DESCRIPTION: SEQ ID NO: 5: US-09-844-988-5
                                                                                                                                                                                                                                                                                 Query Match 100.0%; Score 1179; DB 9; Best Local Similarity 100.0%; Pred. No. 2.8e-111; Matches 218; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 5, Application US/09844988 Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 282 amino acids
121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                         121
                                                                                                                                               61
                                                                                                                                                                                61
                                                                                                                                                                                                                               1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 08/910,820 FILING DATE: 1997-08-13 ATTORNEY/ACENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/09/844,988
FILING DATE: 26-Apr-2001
CLASSIFICATION: CUNKNOWN>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                             GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                               MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                             GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                       DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE: SEED and BERRY LLP STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Murray, Brion W.
INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hengyi
                                                                                                                                                                                                                                                                                                                                                                                             inear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                    Length 282;
                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                   0
```

```
밁
                                    Ş
                                                                           밁
                                                                                                          Ş
                                                                                                                                                 밁
                                                                                                                                                                                  Š
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                          US-09-844-908-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-844-908-3
                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 3, Application US/09844908 Patent No. US20020151021A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: (206) 61 INFORMATION FOR SEQ ID NO:
181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                   181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                       121 DELSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                          121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                               1 MSPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                       1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible operating SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 98104

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 860098.413C1 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Murray, Brion W. TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/09/844,908 FILING DATE: 27-Apr-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: SEED and BERRY LLP STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ENGTH: 282 amino acids
                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zhu, Hengyi
Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       i, Gian
                                                                                                                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                               Linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         682-6031
                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                Score 1179; DB 10; Pred. No. 2.8e-111;
                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                 DB 10;
                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                           60
                                                                         180
```

RESULT 11 US-09-844-908-5 ; Sequence 5, Application US/09844908

```
RESULT 12
US-09-910-600-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-844-908-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Patent No. US20020151021A1
GENERAL INFORMATION:
APPLICANT: Mercurio
                                    GENERAL INFORMATION:
                                                   Sequence 26, Application US/09910600 Publication No. US20030036631A1
                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
APPLICANT: Longphre, Malinda APPLICANT: Chang, Han
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                              181
                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                             181 KRIEAIPQIDKYLKSSKYIAWPLOGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                  121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                         _
                                                                                                                                                                                                                                                                                                                                                                                                          1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION: NAME: Mak1, David J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/08/910,820

FILING DATE: 12-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,908
EILING DATE: 27-Apr-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                    DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                  MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                              KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: USA
ZIP: 98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: SEED and BERRY LLP STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Murray, Brion W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hengyi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 282;
                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                     g
                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
```

Q

밁

밁 Ş 밁 δÃ В

```
; OTHER INFORMATION: Description of Artificial Sequence: L3cyto-Y641; OTHER INFORMATION: alone US-09-910-600-26
                                                                                                                                                                              ; OTHER INFORMATION: fusion sequence US-10-267-311-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 13
US-10-267-311-25
                                                                                                                                                                                                                                                                     SEQ ID NO 25
LENGTH: 324
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Siegel, MATVÍN
APPLICANT: Chu, N. Randall
APPLICANT: Mizzen, Lee A.
TITLE OF INVENTON: INDUCTION OF A TH1-LIKE RESPONSE IN VITRO
FILE REFERENCE: 12071/002001
CURRENT APPLICATION NUMBER: US/10/267,311
CURRENT FILING DATE: 2002-10-09
PRIOR APPLICATION NUMBER: US/09/613,303
PRIOR FILING DATE: 2000-07-10
PRIOR APPLICATION NUMBER: US 60/143,757
PRIOR FILING DATE: 1999-7-08
PRIOR FILING DATE: 1999-7-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 25, Appublication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local :
                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/09/910,600
CURRENT FILING DATE: 2001-07-20
PRIOR APPLICATION NUMBER: 60/220,139
PRIOR FILING DATE: 2000-07-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Whitney, Gena
TITLE OF INVENTION: NOVEL SIGLECS AND USES THEREOF
FILE REFERENCE: D0003NP
                                                                                                                                                                                                                                                                                                                                       SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS: 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                              ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                Y MATCH 100.0%; Score 1179; DB 9; Local Similarity 100.0%; Pred. No. 3.3e-111; ses 218; Conservative 0: Miomatchia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRACTION 100.0%; Score 1179; DB 5 Local Similarity 100.0%; Pred. No. 3e-111; es 218; Conservative 0. Minner.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GDVKLTQSMAIIRYIADKHNMLGGCPKERABISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/10267311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US20030050469A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                 Length 324;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 298;
                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                         0
```

```
US-09-910-600-22

Sequence 22, Application US/09910600

Publication No. US20030036631A1

GENERAL INFORMATION:

APPLICANT: Longphre, Malinda
APPLICANT: Chang, Han

APPLICANT: Whitney, Gena

TITLE OF INVENTION: NOVEL SIGLECS AND USES THEREOF

FILE REFERENCE: D0003NP

CURRENT APPLICATION NUMBER: US/09/910,600

CURRENT FILING DATE: 2001-07-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  멁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 6
LENGTH: 331
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 218; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 6, Application US/09824438 Publication No. US20030073621A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/824,438
CURRENT FILING DATE: 2001-10-29
NUMBER OF SEQ ID NOS: 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Butler, Jon P.
APPLICANT: Hale, John E.
APPLICANT: Heath Jr., William F.
APPLICANT: Schoner, Brigitte E.
APPLICANT: Heiman, Mark L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE REFERENCE: X-12139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Varshavsky, Alexander D.
TITLE OF INVENTION: Beta-lipotropin and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION: Description of Artificial Sequence: GST fusion OTHER INFORMATION: partner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                     181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                  KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                          DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                  GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Becker, Gerald W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 1179; DB 9; ilarity 100.0%; Pred. No. 3.4e-111; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 331;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
```

Search completed: May 20, 2003, 12:02:21 Job time: 35.7335 secs

```
멍
                                                                                                                                                                                                                                                                                                                                                             PEATURE: OTHER INFORMATION: Description of Artificial Sequence: L3cyto-wt
US-09-910-600-22
                                                                        밁
                                                                                                        ş
                                                                                                                                                                              οy
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                 ρy
   밁
                                                                                                                                                                                                                                                                                      Query Match
Best Local Sim
Matches 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: 60/220,139
PRIOR FILING DATE: 2000-07-21
NUMBER OF SEQ ID NOS: 32
SOFTWARE: PATENTIN Ver. 2.0
SEQ ID NO 22
LENGTH: 348
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Artificial Sequence
   181
                                                                                                            121
                                                                                                                                                                                                                                                                                        y Match 100.0%;
Local Similarity 100.0%;
hes 218; Conservative (
                                                                                                                                                61
                                                                                                                                                                                 61
                                                                                                                                                                                                                                    1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                         DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLKMDPMCLDAFPKLVCFK 180
KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                        DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                               GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                      Score 1179; DB 9;
Pred. No. 3.7e-111;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                     60
```

0;

```
Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                        Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB seq
     is
                                                                                                                                                                                                                                                                                                                                           No. is the number of results predicted by chance to have a greater than or equal to the score of the result being printed. s derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-081-408-4
1179
1 MSPILGYWKIKGLV
                                                                                                                                                                                                                                                                                                                                                                                  PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
                                                                                                                                                                                                                                                                                              Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
Gapop 10.0 , Gapext 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 283224 segs, 96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     May 20, 2003, 11:09:54 ; Search time 8.41126 Seconds
(without alignments)
2491.578 Million cell upd
                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum Match 0%
Maximum Match 100%
Listing first 45 s
   MSPILGYWKIKGLVQPTRLL.....IAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Copyright
                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version (c) 1993 - 2003
                                                                                                                                                                                                                                                                                               贸
                                                                                                                                     A48388
A297860
A297860
A297860
S32425
A47486
S65674
S65674
S730975
JX00975
JX00975
JX00975
JX009719
  B28946
A35295
S18464
S50146
S17462
S17462
S41933
S71958
S13780
A37378
                                                                                       XURTG4
A46143
                                                                                                                                                                                                                                                                                               Ħ
                                                                                                                                                                                                                                                                           A26484
                                                                                                                                                                                                                                                                                                                                                                                                                                            summaries
                                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.1.5
Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alignments)
Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              283224
                                                                                                               glutathione transf glutathione S-tran glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf glutathione transf
                                               glutathione transf
glutathione transf
glutathione transf
major allergen Dpl
glutathione i
glutathione i
glutathione i
glutathione i
glutathione i
                                                                                               glutathione
glutathione
                                                                                                                                                                                                                                                                                              Description
                                                                                       mu-class
                                                                                     one transf
one transf
glutathio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                             transf
                     transi
                                                                                                                                             Ş
                                                                                                                                                                  밁
                                                                                                                                                                                 Qy
                                                                                                                                                                                                       망
                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                              Q
A; Reference number: A; Accession: A45556
                                                                                                                           밁
                                                                                                                                                                                                                                            B
                                                                                       A45556
                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                  124
                                                                                                                                                                                    123
                                                                                                                                                                                                        64
                                                                                                                                                                                                                          63
                                                                                                                                                                                                                                             4
                                                                                                                                                                                                                                                                                    216;
```

Result

ŏ

	45	44	43	42	41	40	39	38	37	36	35	34	33	32	<u>ω</u>	30
210 2 XURTGP 9 210 1 B55140 9 210 2 I48112 9 210 2 S71959 9 210 2 JC6529 9 210 2 A45140 9 210 2 A49180 9 210 2 A49180 9 220 1 A45031 9 223 1 A41031 9 223 1 A27848 9 223 1 XURTG 9 221 2 S24322 9	193.5	193.5	195.5	198.5	200.5	214.5	219.5	230	232	233	235	236	236	237	237	238
1 B55140 9 1 B55140 9 2 T48112 9 2 S71959 9 2 JC6529 9 2 JC6529 9 2 A41177 9 2 A49180 9 2 A26653 9 2 A26653 9 1 A27848 9 2 A5488 9 2 S24322 9 2 S24322 9 2 S24322 9 2 S24322 9 2 S24322 9	16.4	16.4	16.6	16.8	17.0	18.2	18.6	19.5	19.7	19.8	19.9	20.0	20.0	20.1	20.1	20.2
	221	221	222	223	222	223	208	210	210	209	210	210	210	210	210	0.17
	N	N	J 4	-	N	_	N	N	2	٢	N	N	N	ب	ب	۷
glutathi glutathi glutathi glutathi glutathi glutathi glutathi glutathi glutathi glutathi glutathi glutathi	S24322	A54858	XURTG	A27848	A26653	A41031	S03615	A49180	A41177	A55140	JC6529	S71959	148112	B55140	XURTGP	5/195/
	glutathion	glutathion	glutathion	glutathion	glutathione	glutathione	glutathione	glutathione	glutathion	glutathion	glutathion	glutathion	glutathione	glutathione	glutathion	grutathione
	trans	trans	trans	trans	trans	trans	trans	trans	trans	trans	trans	trans	S-tra	trans	trans	trans

ALIGNMENTS

```
glutathione S-transferase - IIuwe (vo....
G:Species: Schistosoma mansoni
C:Date: 22-Apr-1993 #sequence_revision
C:Accession: A45556
C:Accession: A45556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A: Molecule type: mRNA
A: Residues: 1-219 <SMI>
R: Smith, D.B.; Davern, K.M.; E
Proc. Natl. Acad. Sci. U.S.A.
A: Reference number: A94181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                glutathione transferase (EC 2.5.1.18) - fluke (Schistosoma japonicum) (fragment) C:Species: Schistosoma japonicum
C:Species: Schistosoma japonicum
C:Date: 25-Oct-1987 *sequence_revision 30-Sep-1989 *text_change 03-Feb-1994
C:Accession: A94139; A26484; A28315
R:Smith, D.B.; Davern, K.M.; Board, P.G.; Tiu, W.U.; Garcia, E.G.; Mitchell, G.F. Proc. Natl. Acad. Sci. U.S.A. 83, 8703-8707, 1986
A:Title: Mr 26,000 antigen of Schistosoma japonicum recognized by resistant WEHI 1: A:Reference number: A94139; MUID:87041520; PMID:3095841
A:Accession: A94139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Contents: annotation; revision to residues C;Superfamily: glutathione transferase C;Keywords: transferase
R;Wright, M.D.; Harrison, R.A.; Melder, A.M.; Newport, G.R.; Mitchell, G.F. Mol. Biochem. Parasitol. 49, 177-179, 1991
A:Title: Another 26-kilodalton glutathione S-transferase of Schistosoma mansoni. A:Reference number: A45556; MUID:92131046; PMID:1775156
                                                                                                                                                                                                                                                                                                                           3 PILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGD 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LSKLPEMIKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKR 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDF 122
                                                                                                                                                                                                                                                                                                                                                                                                                                          LSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 100.
16; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99.2%;
                                                                                                                                                                                         fluke (Schistosoma mansoni)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Board, P.G.; Tiu, . 84, 6541, 1987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1170; DB 2;
; Pred. No. 9.6e-95;
0; Mismatches 0;
                                                                                                                                        18-Nov-1994 #text_change 03-May-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         210-219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
.
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Garcia,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mitchell,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
A;Status: preliminary; not compared with conce
A;Molecule type: nucleic acid
A;Molecule: 1-218 <WRID
A;Note: sequence extracted from NCBI backbone
C;Superfamily: glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: mRNA, A; Residues: 1-218 <TRO.
A; Residues: 1-218 <TRO.
A; Cross-references: GB:M31106; NID:g161004; PIDN:AAA29888.1; PID:g552
A; Cross-references: GB:M31106; NID:g161004; PIDN:AAA29888.1; PID:g552
A; Henkle, K.J.; Davern, K.M.; Wright, M.D.; Ramos, A.J.; Mitchell, G.
Mol. Biochem. Parasitol. 40, 23-34, 1990
A; Title: Comparison of the cloned genes of the 26- and 28-kilodalton
A; Reference number: A449$1; MUID:90271935; PMID:1693415
A; Accession: A44941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      glutathione transferase (EC 2.5.1.18) - C:Species: Schistosoma mansoni C:Date: 03-Uun-1993 #sequence_revision C:Accession: A45523; A44941
                                                                                                                                                                                                                                                                                                                                             A;Molecule type: mRNA
A;Residues: 8-218 <HEN>
A;Cross-references: GB:M26914; GB:M26913; NID:g161006; PIDN:AAA29889.1; PID:g161007
C;Superfamily: glutathione transferase
C;Keywords: transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Trottein, F.; Kieny, M.P.; Verwaerde, C.; Torpier, G.; Mol. Biochem. Parasitol. 41, 35-44, 1990
A;Title: Molecular cloning and tissue distribution of a A;Reference number: A45523; MUID:90348716; PMID:2385266 A;Accession: A45523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
A45523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                            δÃ
                                                                  밁
                                                                                              Ş
                                                                                                                                     В
                                                                                                                                                                    Ş
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮹
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                           Query Ma
Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
 181
                                181
                                                                  121
                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                       61
                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              سو
                                                                                                                                                                                                                                             μ,
                                                                                                                                                                                                                                                                                                                Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                  GDVKLTOSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MAPKLGYWKIKGLVQPTRLLLEYLGERYEERLYDRNDGDVWRNEKFKLGLDFPNLPYYID
                KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                           MSPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QRIENLPPIKNYLNSNRYIKWPLQGWSATFGGGDAPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DFLNKLPGRLKMFEDRLSNKTYLNGNCVTHPDFMLYDALDVVLYMDSQCLNEFPKLVSFK
                                                                                                                                                                                                        MAPKFGYWKVKGLVQPTRLLLEHLEETYEERAYDRNEIDAWSNDKFKLGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transferase (EC 2.5.1.18) -
                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 84.0%;
                                                                                                                                                                                                                                                                                             78.6%;
79.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; Score 990; DB 2;
; Pred. No. 4.8e-79
19; Mismatches 1
                                                                                                                                                                                                                                                                             15;
                                                                                                                                                                                                                                                                          Score 927; DB
Pred. No. 1.5e
15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              03-Jun-1993 #text_change
                                                                                                                                                                                                                                                                                          927; DB 2;
No. 1.5e-73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fluke (Schistosoma mansoni)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIDN:AAA29888.1; PID:g552241 Ramos, A.J.; Mitchell, G.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Torpier, G.; Pierce, R.J.; Balloul, J.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218
                                                                                                                                                                                                                                                                             29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26-kilodalton Schistosoma mansor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S-tran
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
A48388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÔ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
```

```
A;Cross-references: GB:L13448
A;Cross-references: GB:L13448
A;Cross-references: Galdsmith, M.E.; Pickett, C.B.; Cowan, K.H.
R;Townsend, A.J.; Goldsmith, M.E.; Pickett, C.B.; Cowan, K.H.
J. Biol. Chem. 264, 21582-21590, 1989
A;Title: Isolation, characterization, and expression in Esch
A;Reference number: A34159; MUID:90094327; PMID:2689439
A;Accession: A34159
A;Accession: A34159
A;Accession: A34159
A;Cross-references: GB:J04632; NID:9193547; PIDN:AAA37705.1;
A;Cross-references: GB:J04632; NID:9193547; PIDN:AAA37705.1;
A;Cross-references: GB:J04632; NID:9193547; PIDN:AAA37705.1;
A;Cross-references: GB:J04632; NID:9193547; PIDN:AAA37705.1;
A;Cross-references: GB:J04632; NID:9193547; PIDN:AAA37705.1;
A;Cross-references: GB:J04632; NID:9193547; PIDN:AAA37705.1;
A;Crotences: GB:J04632; NID:9193547; PIDN:AAA37705.1;
A;Reference number: A92668; MUID:88330838; PMID:3417659
A;Contents: clone GGT 875
A;Accession: A28946
A;Molecule type: mRNA
A;Residues: 2-218 <PEA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 5
$33860
glutathione transferase (EC 2.5.1.18) mul - mouse
glutathione transferase (EC 2.5.1.18) mul - mouse
N;Alternate names: glutathione transferase major chain; glutathione transferase
C;Species: Mus musculus (house mouse)
C;Date: 08-Dec-1993 *sequence_revision 07-Oct-1994 *text_change 18-Jun-1999
C;Date: 08-Dec-1993 *sequence_revision 07-Oct-1994 *text_change 18-Jun-1999
C;Accession: $33860; A34159; A28946; A20831; I24735; $16933; $71312
R;Reinhart, J.; Pearson, W.R.
A;Ccession: $33860; My.R.
A;Accession: $33860; My.R.
A;Accession: $33860; My.R.
A;Accession: $33860; My.R.
A;Molecule type: DNA
A;Molecule type: DNA
A;Molecule type: DNA
A;Residues: 1-218 <REI>
A;Accession: $33860; My.R.
A;Accession: $33860; My.R.
A;Accession: $33860; My.R.
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI>
A;Residues: 1-218 <REI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: nucleic acid
A; Residues: 1-209 <MUR>
A; Experimental source: Puerto Rico
A; Mote: sequence extracted from NCBI backbone (NCBIN:129138, NCBIP:129139)
C; Superfamily: glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R:Muro, A.; Rodriguez-Medina, J.R.; Hillyer, G.V. Am. J. Trop. Med. Hyg. 48, 457-463, 1993
A:Title: Sequence analysis of a Fasciola hepatica glutathione A:Reference number: A48388; MUID:93228188; PMID:7682383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        glutathione S-transferase - liver fluke (fragment)
C;Species: Fasciola hepatica (liver fluke)
C;Date: 19-Nov-1993 #sequence_revision 18-Nov-1994 #text_change
C;Accession: A48388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Reference number: A; Accession: A48388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIEAIPQI 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KAYMESEKFIKWPLNSWIASFGGGDAAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLSKLPEM 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IRGLQQPVRLLLEYLGEEYEEHLYGRDDREKWFGDKFNMGLDLPNLPYYIDDKCKLTQSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVKLTQSM 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DKYLKSSKYIAWPLQGWQATFGGGDHPP 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LKMWSDFLGDRHYLTGSTVSHVDFMVYEALDCIRYLAPQCLEDFPKLKEFKSRIEDLPKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AIMRYIADKHGMLGSTPEERARISMIEGAAMDLRMGFVRVCYNPKFEEVKGDYLKELPTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 654; DB 2;
Pred. No. 9.6e-50;
1; Mismatches 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          208
                                                                                                                                                                                                                                                                          PIDN:AAA37705.1;
Anderson, K.S.; Ac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49 as
K.H.
                                                                                                                                                                                                                                                                              PID:g309260
ller, P.N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S-transferase cDNA clon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-May-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CO11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          t wo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               coordinat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        residu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          murin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mu-8.
```

transferase mRNAs

γď

```
A29794

A29794

A29794

A29794

N; Alternate names: glutathione S-transferase Ybl; ligandin

C; Species: Rattus norvegicus (Norway rat)

C; Species: Rattus norvegicus (Norway rat)

C; Date: 28-Aug-1989 #sequence_revision 28-Aug-1989 #text_change 18-Jun-1999

C; Accession: A29794; A25510; A24085; B61004; F24735; A33397; S27111; S17167;

R; Chang, C; Saltzman, A.G.; Sorensen, N.S.; Hilpakka, R.A.; Liao, S.

J. Biol. Chem. 262, 11901-11903, 1987

A; Title: Identification of glutathione S-transferase Yb-1 mRNA as the androge A; Reference number: A29794; MUID:87308179; PMID:3040722

A; A; Accession: A29794; MUID:87308179; PMID:3040722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: GB:J03952; NID:g193687; PIDN:AAA37747.1; PID:g30927 R;Pearson, W.R.; Windle, J.J.; Morrow, J.F.; Benson, A.M.; Talalay, P. J. Biol. Chem. 258, 2052-2062, 1983
A;Title: Increased synthesis of glutathione S-transferases in response A;Reference number: A9241; MUID:B3109018; PMID:6822548
A;Accession: A20831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Gene: GSTM1
A;Introns: 12/3; 38/1; 59/3; 87/1; 120, C;Superfamily: glutathione transferase C;Keywords: dimer; transferase F;2-218/Product: glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R:Fernandes, C.L.; Dong, J.H.; Roebuck, B.D.; Chisari, F.V.; Montali, J.A.; Schmidt Jr. Arch. Biochem. Biophys. 331, 104-116, 1996
A;Title: Elevations of hepatic guinone reductase, glutathione, and alpha- and mu-class A;Reference number: S71311; MUID:96268466; PMID:8660689
A;Recession: S71312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R:Hayes, J.D.; Kerr, L.A.; Peacock, S.D.; Cronshaw, A.D.; McBiochem. J. 277, 501-512, 1991
A;Title: Hepatic glutathione S-transferases in mice fed on a adient elution of the glutathione-Sepharose affinity matrix. A; Reference number: S16933; MUID:91315425; PMID:1859377
A; Accession: S16933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Access....
A; Molecule type: protein
A; Residues: 2-7,'X',8-13,'X',15-23,'X',25
A; Residues: 2-7,'X',8-13,'X',15-23,'X',25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A:Molecule type: protein A:Molecule type: protein A:Residues: 2-7, 'X', 8-13, 'X',15-23, 'X',25, 'XX',28, 'N',30-31, 'X',33, 'X',35-39, 'M',41 <PEI R:Mannervik, B: Ain, P.; Guthenberg, C.; Jensson, H.; Tahir, M.K.; Warholm, M.; Jornva Proc. Natl. Acad. Sci. U.S.A. 82, 7202-7206, 1985
A;Title: Identification of three classes of cytosolic glutathione transferase common to A;Reference number: A24735; MUID:86042634; PMID:3864155
A;Accession: I24735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Residues:
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: protein A; Residues: 97-108 <FER>
      A: Molecule type: mRNA
A: Residues: 1-218 < CHA>
A: Cross-references: GB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: protein A; Residues: 2-36 < HAY>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LVCFKKRIEAIPQIDKYLKSSKYIAWPL 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MPMILGYWNVRGLTHPIRMLLEYTDSSYDEKRYTMGDAPDFDRSQWLNEKFKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAEPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PYLIDGSHKITQSNAILRYLARKHHLDGETEEERIRADIVENQVMDTRMQLIMLCYNPDF 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EKOKPEFLKTIPEKMKLYSEFLGKRPWFAGDKVTYVDFLAYDILDQYRMFEPKCLDAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12/3; 38/1; 59/3; 87/1; 120/3; 152/3; 189/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             glutathione transferase mul #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41.0%; Score 483.5;
44.2%; Pred. No. 7.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NID:g193687; PIDN:AAA37747.1; PID:g309278 MOTIOW, J.F.; Benson, A.M.; Talalay, P.
   NID:g204514; PIDN:AAA41293.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <MAN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.6e-35;
73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           on a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        McLellan,
   PID:g204515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              to anticarcinoger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 antica
                                                                                                          δÃ
Š
                                                          В
                                                                                                                                                                       В
                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                            Ş
```

ETLKYDELSKLPEMLKMFEDRICHKTYLNGDHYTHPDFMLYDALDYVLYMDPMCLDAFPK 175

180

PYLIDGSRKITQSNAIMRYLARKHHLCGETEEERIRADIVENQVMDNRMQLIMLCYNPDF

```
A; Molecule type: mRNA
A; Residues: 1-198, 'NC', 201-218 <DIN>
A; Residues: 1-198, 'NC', 201-218 <DIN>
A; Cross-references: GB:M11719; NID:9204502; PIDN:AAA4128
A; Experimental source: clone pGTA/C44
R; Chang, L.H.; Hsieh, J.C.; Chen, W.L.; Tam, M.F.
Electrophoresis 11, 589-593, 1990
A; Title: Identification of rat liver glutathione S-transical isoelectric focusing gel.
A; Reference number: A61004; MUID:91031411; PMID:2226415
A; Accession: B61004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A: Molecule type: protein
A: Residues: 2-26 <CH2>
A: Residues: 2-26 <CH2>
R: Mannervik, B.; Ain, P.; Guthenberg, C.; Jensson, H.; Tahir, M.K
Proc. Natl. Acad. Sci. U.S.A. 82, 7202-7206, 1985
A: Title: Identification of three classes of cytosolic glutathione
A: Reference number: A24735; MUID: 86042634; PMID: 3864155
A: Accession: F24735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: GB:X04229; NID:956337; R;Ding, G.J.F.; Lu, A.Y.H.; Pickett, C.B. J. Biol. Chem. 260, 13268-13271, 1985
A;Reference number: A24085; MUID:86033768; A;Accession: A24085.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Lai, H.C.J.; Grove, G.; Tu, C.P.D.
Nucleic Acids Res. 14, 6101-6114, 1986
A;Title: Cloning and sequence analysis of a cDNA for a rat
A;Reference number: A25510; MUID:86312882; PMID:2875437
A;Accession: A25510
                                                                                                                                                                                                                                                                                                                                           A; Molecule type: protein A; Residues: 2-218 <HS2> C; Superfamily: glutathior C; Keywords: dimer; transi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: protein
A; Residues: 2-20,83-86',X',88-96;109-115,'X',117-122 <K;
R; Hsieh, J.C.; Huang, S.C.; Chen, W.L.; Lai, Y.C.; Tam,
Biochem, J. 278, 293-297, 1991
A; Title: Cysteine-86 is not needed for the enzymic activ
A; Reference number: S17167; MUID:91354218; PMID:1883338
A; Accession: S17167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Molecule type: protein
A;Residues: 2-21,212-218 <HSI>
A;Residues: 2-21,212-218 <HSI>
R;Katusz, R.M.; Bono, B.; Colman, R.F.
Arch. Biochem. Biophys. 298, 667-677, 1992
A;Title: Identification of Tyr(115) labeled by S-(4-bromo-2,3-dioxobutyl)glutathior
A;Reference number: S27111; MUID:93037509; PMID:1416995
A;Accession: S27111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R:Hsieh, J.C.; Liu, L.F.; Chen, W.L.; Tam, M.F.
Blochen. Blophys. Res. Commun. 162, 1147-1154, 1989
A;Title: Expression of Yb-1 glutathione S-transferase using a baculovirus expressic A;Reference number: A33397; MUID:89350924; PMID:2669745
A;Accession: A33397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: mRNA
A; Residues: 1-218 <LAI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: protein A; Residues: 2-20 < MAN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                    Superfamily: glutathione transferase; Keywords: dimer; transferase
                                                   56
                                                                                                                                                                                                                                                               Local
                     PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                             MPMILGYWNVRGLTHPIRLLLEYTDSSYEEKRYAMGDAPDYDRSQWLNEKFKLGLDFPNL
                                                                                                                                                                    MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL 55
                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                            41.0%;
                                                                                                                                                                                                                             Score 483.5; DB:
Pred. No. 7.6e-35;
3; Mismatches 7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PMID:3840477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           enzymic activity of glutathione S-transf PMID:1883338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIDN:CAA27811.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIDN: AAA41287.1;
                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <KAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PID:956338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID:g204503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M. K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              subunits
                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Warholm,
120
                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ρĄ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S-tran
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          commo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              parti
```

밁

181

LKDFLARFEGLKKISAYMKSSRYLSTPI

```
C; Species: Homo saprens (mu. C; Date: 07-Apr-1994 #sequen C; Date: 05-Apr-1994 #sequen C; Accession: S32425; S29337 C; Accession: S32425; S29337 C; Accession: S32425; S29337 C; Accession: S32425; S29337 C; Accession: S32425; S29337 C; Accession: S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425; S32425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R:Zhong, S.: Spurr, N.K.: Hayes, J.D.; Wolf, C.R. Blochem. J. 291, 41-50, 1993
A:Title: Deduced amino acid sequence, gene structure and A:Reference number: S32424; MUID:93228631; PMID:8471052
A:Accession: S32425
                                         R; Ross, V.L.; Bot Biochem. J. 294,
                                                                                                       A;Molecule type: mRNA
A;Residues: 1-218 <CC2>
A;Cross-references: GB:M96234; NID:g306818;
A;Experimental source: Hela cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             glutathione transferase (EC 2.5.1.18) class mu, GSTM4 (version 1) - C:Species: Homo sapiens (man) C:Date: 02-Jun-1995 #sequence_revision 02-Jun-1995 #text_change 18-J C:Accession: A47486; B47486; S36782; I37438; S45885 R:Comstock, K.E.; Johnson, K.J.; Rifenbery, D.; Henner, W.D. J. Biol. Chem. 268, 16958-16965, 1993 A:Title: Isolation and analysis of the gene and cDNA for a human mu A:Reference number: A47486; MUID:93352467; PMID:8349586 A:Accession. A47486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Gene: GDB:GSTM4
A;Cross-references: GDB:134191; OMIM:138333
A;Mnap position: 1p13.3-lp13.3
A;Introns: 12/3; 38/1; 59/3; 87/1; 120/3; 152/3; 189/3
C;Superfamily: glutathione transferase
                                                                                                                                                                                                                                                                                                     A;Cross-references: GB:M96233
A;Accession: B47486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-218 <ZHO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N; Alternate names: glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   glutathione
                                                                                                                                                                                                                                                           A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-218 <COM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Note:
                                                                                                                                                                                                                                                                                                                                                                                                                                               Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cross-references: EMBL:X68677; NID:g31934; Note: the authors translated the codon AAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Date: 07-Apr-1994 #sequence_revision
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Species: Homo sapiens (man)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        176 LYCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MSPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERD-----EGDKWRNKKFELGLEFPNL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LKDFISRFEGLEKISAYMKSSRFLPKPLYTRMAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EKLKPEYLEELPTMMQHFSQFLGKRPWFVGDKITFVDFLAYDVLDLHRIFEPNCLDAFPN 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PYLIDGAHKITQSNAILCYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDF 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MPMILGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGGAPDYDRSQWLNEKFKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dimer; transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transferase (EC 2.5.1.18) class mu,
                                             Board, P.G.
94, 373-380, 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
       cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40.8%;
       and
       heterologous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 480.5; DB 2;
Pred. No. 1.4e-34;
7; Mismatches 79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             07-Apr-1994 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mu4
                                                                                                                                                    PIDN: AAA57347.1;
       expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIDN:CAA48637.1; PID:g31935 for residue 182 as Arg and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSTM4 (version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
       of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chromosomal location
       an
                                                                                                                                                 PID: g306819
alternatively spliced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mu class glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for residue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of.
       humar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nove
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ġ
```

```
A;Contents: annotation
R;Taylor, J.B.; Oliver, J.; Sherrington, R.; Pemble, S.E.
Blochem. J. 274, 587-593, 1991
A;Title: Structure of human glutathione S-transferase class
A;Reference number: I37438; MUID:91174774; PMID:2006920
A;Accession: I37438
A; Molecule type: protein A; Residues: 2-21 < PRI> C; Superfamily: glutathio
                                                                        R;Primiano, T.; Novak, R.F.
Arch. Biochem. Biophys. 301, 404-410, 1993
A;Title: Purification and characterization of class mu glutathione S-transferase
A;Reference number: S30380; MUID:93213177; PMID:8460949
A;Accession: S30380
                                                                                                                                                                                                                                                                                                                                 C;Accession: S65674; S30380
R;Lee, Y.B.; Han, Y.S.; Kim, Y.S.; Koh, J.K.
Arch. Biochem. Biophys. 318, 424-429, 1995
A;Title: Cloning and expression of a CDNA for Mu-Class Glutathione
A;Reference number: S65674; MUID:95251394; PMID:7733673
                                                                                                                                                                                                                                                                                                                                                                                                                                                          glutathione transferase (EC 2.5.1.18) class mu chain 7.8 - C;Species: Oryctolagus cuniculus (domestic rabbit) C;Date: 28-Oct.1996 #sequence_revision 13-Mar-1997 #text_ch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Superfamily: glutathione transferase
C;Keywords: alternative splicing; dimer; transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Comstock, K.E.; Widersten, M.; Hao, X.Y.; Henner, W.D.; Mannervik, B. Arch. Biochem. Biophys. 311, 487-495, 1994
A;Title: A comparison of the enzymatic and physicochemical properties of A;Reference number: S45684; MUID:94263230; PMID:8203914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-218 < ROS>
                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-218 <LEE>
                                                                                                                                                                                                                                                                                                            A; Reference number: A; Accession: S65674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S65674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Map position: 1p13.3-1p13.3
A; Introns: 12/3; 38/1; 59/3; 87/1; 120/3; 152/3; 189/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: DNA
A; Residues: 39-120 <RES>
A; Cross-references: EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Experimental source: testis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Reference number: S36782; MUID:93384505; PMID:8373352
A;Accession: S36782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: GDB:134191; OMIM:138333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Gene: GDB:GSTM4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: EMBL:M99422
                                                                                                                                                                                                        A;Cross-references: EMBL:L23766; NID:g388198;
                                                                                                                                                                                                                                                                                 A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 44.v
95; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LKDFISRFEGLEKISAYMKSSRFLPKPLYTRVAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EKLKPEYLEELPTMMQHFSQFLGKRPWFVGDKITFVDFLAYDVLDLHRIFEPNCLDAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PYLIDGAHKITQSNAILCYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MSMTLGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNL
     glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL: X56837; NID: g31936; PIDN: CAA40167.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40.8%; Score 480.5;
44.0%; Pred. No. 1.40
tive 37; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.4e-34;
ches 79;
                                                                                                                                                                                                        PIDN: AAA69665.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #text_change 18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rabbit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         듯
                                                                                                                                                                                                        PID:g388199
                                                                                                                                                                                                                                                                                                                                                              S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    human glutat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲.
                                                                                                                                isoz
```

```
A; Note: Litanslation of initiator McC is nown
A; Singh, S.V. Ahmad, H.; Kurosky, A.; Awasthi, Y.C.
Arch. Blochem. Blophys. 264, 13-22, 1988
A; Title: Purification and characterization of unique glutathione S-transferases from A; Reference number: A90081; MUID:88280250; PMID:3395118
A; Recession: A28810
A; Recession: A28810
A; Recession: Salary and Characterization of unique glutathione S-transferases from A; Recession: A28810
A; Recession: A28810
A; Residues: 2-7, 'X', 9-10, 'X', 12-14 <SIN>
A; Experimental source: skeletal muscle
R; Tsuchida, S.; Maki, T.; Sato, K.
J. Biol. Chem. 265, 7150-7157, 1990
A; Title: Purification and characterization of glutathione transferases with an active control of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Species: Homo sapiens (man)
C;Date: 20-Mar-1992 #sequence_revision 06-Jan-1995 #text_change 21-Jul-2000
C;Accession: A39375; A28810; C35187; S13305; S14344
R;Vorachek, W.R.; Pearson, W.R.; Rule, G.S.
Proc. Natl. Acad. Sci. U.S.A. 88, 4443-4447, 1991
A;Title: Cloning, expression, and characterization of a class-mu glutathion. A;Reference number: A39375; MUID:91239584; PMID:2034681
A;Accession: A39375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Experimental source: myoblast
A;Note: translation of initiator Met is not shown
R;Singh, S, V.; Ahmad, H.; Kurosky, A.; Awasthi, Y.C.
Arch. Biochem. Biophys. 264, 13-22, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    glutathione transferase (EC 2.5.1.18) mu-2 [validated] - human
N;Alternate names: glutathione S-transferase GST4, muscle; glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Keywords: dimer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: GB:M63509; NID:g183300; PIDN:AAA60963.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: mRNA
A; Residues: 1-218 < VOR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LKDFHVRFEGLPKISAYMKSSRFIRVPVFLKKATWTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EKLKPEYLKGLPEKLQLYSQFLGSLPWFAGDKITFADFLVYDVLDQNRIFVPGCLDAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PYLIDGTHKLTQSNAILRYLARKHGLCGETEEERIRVDILENQLMDNRFQLVNVCYSPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MPMTLGYWDVRGLALPIRMLLEYTDTSYEEKKYTMGDAPNYDQSKWLSEKFTLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                l Similarity
96; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                40.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 478.5;
Pred. No. 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .1e-34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PID:g183301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  glutathione transferas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1soenzymes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1;
                                                                                                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from
                                                                                                                                                                 from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GST6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
```

```
C;Genetics:
A;Gene: GDB:GSTM2; GST4
A;Gene: GDB:GSTM2; GST4
A;Cross-references: GDB:128593; OMIM:138380
A;Map position: lp13.3-lp13.3
C;Superfamily: glutathione transferase
C;Keywords: brain; cardiac muscle; heart; homodimer; skeletal muscle; F;2-218/Product: glutathione transferase mu-2 #status experimental <WP
                                                                                                                                                                                                                                                                                                                                              A;Title: Amino acid sequence of glutathione S-transferase A;Reference number: JX0095; MUID:90236981; PMID:2332413 A;Accession: JX0095
A;Molecule type: protein A;Residues: 1-217 <KAM>C;Comment: Glutathione transferases are a family of enzyme C;Superfamily: glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    glutathione transferase (EC 2.5.1.18) b - guinea pi N;Alternate names: glutathione S-alkyltransferase; C;Species: Cavia porcellus (guinea pig) C;Date: 07-Sep-1990 #sequence_revision 07-Sep-1990 C;Accession: JX0095 R;Kamel K K; Oshino, R ; Hara S. J. Biochem. 107, 111-117, 1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JX0095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                              Ş
                                                                    밁
                                                                                                 δÃ
                                                                                                                                       В
                                                                                                                                                                      δÃ
                                                                                                                                                                                                          В
                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 95
                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                               Query Match
 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                      124
                                                                                                 120 VDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56
                                                                                                                                         64
                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ب
                                                                                                                                                                                                            4
                                                                                                                                                                                                                                             5 LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI
                                                                                                                                                         DGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 119
                                  KKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LKDFISRFEGLEKISAYMKSSRFLPRPVFTKMAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PYLIDGTHKITQSNAILRYIARKHNLCGESEKEQIREDILENQFMDSRMQLAKLCYDPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MPMTLGYWNIRGLAHSIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNL
EKLKPEYLQALPEMLKLYSQFLGKQPWFLGDKITFVDFIAYDVLERNQVFEPSCLDAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                    AEFLEGIPDKMKLFSQFLGKLPWFAGNKLTYVDFLAYDVLDQYRMLEPKCLEAFPNLKDF
                                                                                                                                       DGTHKLTQSNAILRYIARKHNLCGVTEEETIRMDILENQVMDIRMQLIMLCYSPDFEQKK
                                                                                                                                                                                                            LGYWNIRGLTHPIRLILEYTNSGYEEKRYNMGDAPDYDRSQWLNEKFKLGLDFPNLPYLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . Similarity
95; Conserv
                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                             40.2%;
45.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40.2%;
                                                                                                                                                                                                                                                                             34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 474.5; I
Pred. No. 4.7e
35; Mismatches
                                                                                                                                                                                                                                                                             Score 473.5; DB Pred. No. 5.7e-34 74; Mismatches 7
                                  203
 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-Sep-1990 #text_change 18-Jun-1993
                                                                                                                                                                                                                                                                                                                                                                                  family of enzymes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.7e-34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pig
                                                                                                                                                                                                                                                                                                               2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         glutathione S-aryltransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۵
                                                                                                                                                                                                                                                                                                                                                                                    that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                    are multifunctiona
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      guinea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AMAT>
                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                           123
                                                                                                                                                                                                            63
                                                                                                                                                                                                                                              59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55
                                                                                                     179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pig
                                                                                                                                                                                                                                                                                 ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲,
```

g

RESULT 12 \$13202 \$13202 Grident transferase (EC 2.5.1.18) Y1 - Chinese C:Species: Cricetulus griseus (Chinese hamster) C:Date: 18-Feb-1994 #sequence_revision 06-Jan-1995

hamster

#text_change

18-Jun-1999

```
Mol. Endocrinol. 5, 979-986, 1991
A;Title: Cloning of a mu-class glutathione
A;Reference number: A23732; MUID:92049380;
A;Accession: A23732
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-218 < ROBS
A;Cross-references: GB:X57489; NID:g49541; PIDN:CAA40726.1; PID:g49542
A;Cross-references: GB:X57489; NID:g49541; PIDN:CAA40726.1; PID:g49542
A;Note: in Genbank entry CLY1, release 109, the source is designated as C;Superfamily: glutathione transferase
C;Superfamily: glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Robert de Saint Vincent, B.; Hyrien, O.; Debatisse, M.; Butti
Eur. J. Blochem. 193, 19-24, 1990
A;Title: Coamplification of mu class glutathione S-transferase
A;Reference number: S13202; MUID:91031445; PMID:2226437
A;Accession: S13202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               glutathione transferase (EC 2.5.1.18) mu - golden hamster
C;Species: Mesocricetus auratus (golden hamster)
C;Date: 30-Dec-1991 #sequence_revision 30-Dec-1991 #text_change 18-Jun-1999
C;Accession: A23732; S21908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C; Accession:
R; Robert de S
밁
                             Ş
                                                                        В
                                                                                                     Š
                                                                                                                                                밁
                                                                                                                                                                                  ş
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: EMBL:X61033; NID:g49638; PIDN:CAA43368.1; A;NOTE: submitted to the EMBL Data Library, July 1991 C;Superfamily: glutathione transferase C;Keywords: transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-218 <NOR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Norris, J.S.; Schwartz,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
181
                                     176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   116
                                                                          121
                                                                                                             116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                61
                                                                                                                                                                                    56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            56
                                                                                                                                                                                                                           ب
                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LKDFLARFEGLKKISAYMKTSRFLRRPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ETIKVDFLSKLPEMIKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                 LVCFKKRIEAIPQIDKYLKSSKY
                                                                                                         ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                              MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LVCFKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EKOKPEFLKTIPEKMKMYSEFLGKRPWFAGDKVTLCGFLAYDVLDQYQMFEPKCLDPFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PYLIDGSHKITQSNAILRYIARKHNLCGETEEERIRVDIVENQAMDTRMQLIMLCYNPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL 55
                                                                    EKRKPEYLEGLPEKMKLYSEFLGKRSWFAGDKITYVDFLIYDVLDQHRIFAPKCLDAFPN 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MPMILGYWNVRGLTNPIRLLLEYTDSSYEEKKYTMGDAPDSDRSQWLNEKFKLGLDFPNL 60
                                                                                                                                            PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                       MPVTLGYWDIRGLAHAIRLLLEYTDTSYEEKKYTMGDAPNFDRSQWLNEKFKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                   90;
                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                   39.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D.A.; MacLeod, S.L.; Fan,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hyrien, O.; Debatisse, M.; Buttin,
                                                                                                                                                                                                                                                                                               37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          36;
                                                                                                                                                                                                                                                                                             Score 469.5;
Pred. No. 1.3e
37; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 470.5; DB Pred. No. le-33; 86; Mismatches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S-transferase complementary DNA and PMID: 1944302
                                                                                                                                                                                                                                                                                                               .3e-33
                                                                                                                                                                                                                                                                                                                                     DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W.; O'Brien, T.J.; Harris,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   is designated as Cricetulus long.
                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                     218;
                                                                                                                                                                                                                                                                                                                                                                                                                               PID: g49639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   genes and
                                                                                                                                                                                                                                                                                             Çī,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ດ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                        55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   an adenylate
                                                                                                                                                                                                                                                                                             ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              characte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S.E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ř
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>э</u>р
```

```
glutathione transferase (EC 2.5.1.18) mu2 - mouse (Species: Mus musculus (house mouse) C;Species: Mus musculus (house mouse) C;Date: 11-Apr-1990 #sequence_revision 25-Sep-1992 #text_change 18-Jun-1999 C;Accession: B34159; S30369; S30370; S30372 R;Townsend, A.J.; Goldsmith, M.E.; Pickett, C.B.; Cowan, K.H. J. Biol. Chem. 264, 21502-21590, 1989 J. Biol. Chem. 264, 21502-21590, 1989 A;Title: Isolation, characterization, and expression in Escherichia coli of A;Reference number: A34159; MUID:90094327; PMID:2689439 A;Accession: B34159
                                                                                                                                                                                                                                                                                                                                              RESULT 15
S01719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 14
B34159
                                                                                                             C;Species: Homo sapiens (man)
C;Date: 30-Jun-1989 *sequence_revision 30-Jun-1989 *text_change 21-Jul-2000
C;Date: 30-Jun-1989 *sequence_revision 30-Jun-1989 *text_change 21-Jul-2000
C;Accession: S01719; A30770; S32424; I37437; S13905; B22457; D35187; S27188;
R;DeJong, J.L.; Chang, C.M.; Whang-Peng, J.; Knutsen, T.; Tu, C.P.D.
Nucleic Acids Res. 16, 8541-8554, 1988
A;Title: The human liver glutathione S-transferase gene superfamily: express:
A;Reference number: S01719; MUID:88335606; PMID:3419925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Note: this form was identified C; Superfamily: glutathione transf C; Keywords: transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R; Awasthi, S.; Singhal, S.S.; Srivastava, S. Arch. Biochem. Blophys. 301, 143-150, 1993 A; Title: Purification and characterization A; Reference number: S30369; MUID:93183007; A; Accession: S30369
                            A; Molecule type: mRNA
A; Residues: 1-218 <DEJ>
                                                                                                                                                                                                                                                                                             glutathione transferase (EC 2.5.1.18) class mu, N; Alternate names: glutathione S-transferase 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: protein A; Residues: 2-25 < AW3>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: mRNA
A; Residues: 1-218 < TOW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Note: this form was identified A; Accession: S30372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: protein A; Residues: 2-25 < AW2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: protein A; Residues: 2-25 < AW1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: GB:J04696; NID:g193549; PIDN:AAA37706.1; R;Awasthi, S.; Singhal, S.S.; Srivastava, S.K.; Awasthi, Y.C
     A;Cross-references:
                                                                    A; Accession: S01719
                                                                                              A; Contents: allele_la (mu)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: S30370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Note: this form was identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                  LKDFMGRFEGLKKISDYMKSSRFLSKPI 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LVCFKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PYLIDGSHKITQSNAILRYLARKHNLCGETEEERIRVDILENQAMDTRIQLAMVCYSPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MPMTLGYWDIRGLAHAIRLLLEYTDTSYEDKKYTMGDAPDYDRSQWLSEKFKLGLDFPNL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EKKKPEYLEGLPEKMKLYSEFLGKQPWFAGNKVTYVDFLVYDVLDQHRIFEPKCLDAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
EMBL: X08020; NID: g31923;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 468.5; DB 2
Pred. No. 1.6e-33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      by pI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ьy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pI 6.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of glutathione
PMID:8442656
  PIDN:CAA30821.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
                                                                                                                                                                                                                                                                                             mu (H-b); glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                             glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PID: g309261
PID: g31924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   coli of two murin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                            expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             murine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ova
```

AMAT>

```
A;Molecule type: protein
A;Residues: 2-24 <ALI>
R;Tsuchida, S.; Maki, T.; Sato, K.
J. Biol. Chem. 265, 7150-7157, 1990
A;Title: Purification and characterization of glutathione A;Reference number: A35187; MUID:90237002; PMID:2110160
A;Accession: D35187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Experimental source: muscle R; Alin, P.; Mannervik, B.; Jornvall, H. FEBS Lett. 182, 319-322, 1986 A; Title: Structural evidence for three different types of A; Reference number: A91336; MUID: 85154554; PMID: 3979555 A; Accession: B22457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 60-118 < RES>
A; Cross-references: EMBL:X51451; NID:g31922; PIDN:CAA35817.1; PID:g4378985
A; Cross-references: EMBL:X51451; NID:g31922; PIDN:CAA35817.1; PID:g4378985
R; Singhal, S.S.; Ahmad, H.; Sharma, R.; Gupta, S.; Haque, A.K.; Awasthi, Y.
Arch. Biochem. Biophys. 285, 64-73, 1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 1-43, 'T', 45-172, 'N', 174-218 <ZHO>
A; Residues: 1-43, 'T', 45-172, 'N', 174-218 <ZHO>
A; Cross-references: EMBL:x68676
A; Note: the authors translated the codon ACG for residue 44 as R; Comstock, K.E.; Sanderson, B.J.; Clafiin, G.; Henner, W.D. Nucleic Acids Res. 18, 3670, 1990
A; Title: GST1 gene deletion determined by polymerase chain reace A; Reference number: 137437; MUID:90301515; PMID:2362832
A; Accession: 137437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R;Zhong, S:; Spurr, N.K.; Hayes, J.D.; Wolf, C.R.
Biochem. J. 291, 41-50, 1993
A;Title: Deduced amino acid sequence, gene structure and chromosomal location
A;Reference number: S32424; MUID:93228631; PMID:8471052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: mRNA
A;Residues: 1-172,'N',174-218 <SEI>
A;Cross-references: EMBL:J03817; NID:g183668; PIDN:AAA59203.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Seldegard, J.; Vorachek, W.R.; Pero, R.W.; Pearson, W.R.
Proc. Natl. Acad. Sci. U.S.A. 85, 7293-7297, 1988
A;Title: Hereditary differences in the expression of the human glutathione transferase A;Reference number: A30770; MUID:89017184; PMID:3174634
A;Contents: allele 1b (psi)
                                                                                                                                                                           A; Experimental source: colon R; Pearson, W.R.; Vorachek, W.R.; Xu, S.J.; Berger, R.; Hart, Am. J. Hum. Genet. 53, 220-233, 1993
A; Title: Identification of class-mu glutathione transferase A; Reference number: I51867; MUID:93304417; PMID:8317488
A; Accession: I51867
                                A; Molecule type: DNA
A; Residues: 125-172, 'N', 174-186 <RE2>
A; Cross-references: GB:S62935; NID:g3
                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Singhal, S.S.; Saxena, M.; Awasthi, S.; Ahmad, H.; Sharma, R.; Awasthi, Y.C. Biochim. Biophys. Acta 1171, 19-26, 1992 A;Title: Gender related differences in the expression and characteristics of glutathion A;Reference number: S27188; MUID:93042004; PMID:1420361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Title: Purification and characterization of human muscle glutathione S-transferases: A;Reference number: S13905; MUID:91119426; PMID:1846734
A;Accession: S13905
                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: protein A; Residues: 2-13 <SI2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: protein A; Residues: 2-15 <SIN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Experimental source: liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: A3077
                                                                                                                                      A; Status: preliminary; translated from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Experimenta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: protein
A; Residues: 2-10,'x',12-14,'x',16-17,'X',19-25 <TSU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: nucleic
Cross-references: GB:S62935; NID:g386429; PIDN:AAD13938.1; PID:g4261638; Comment: The GSTM1 locus for the mu isoenzyme of glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Experimental source: liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S32424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          l source: heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acid sequence not shown; translation not shown; translated from
                                                                                                                                              GB/EMBL/DDBC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              polymerase chain reaction
                                                                                                                                                                                                                                                                                                                     R.; Hart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transferases
                                                                                                                                                                                                                                                genes GSTM1-GSTM5 on
                                                                                                                                                                                                                                                                                                                     I.; Vannais, D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PID: g306812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'n
       18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of a
   polymorph
                                                                                                                                                                                                                                                                                                                     Pattersor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GB/EM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nove
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hun
```

GDB:GSTM1; GSTM16

```
A;Cross-references: GDB:120020; OMIM:138350
A;Map position: 1p13.3-1p13.3
A;Introns: 12/3; 38/1; 59/3; 87/1; 120/3; 152/3
C;Superfamily: glutathione transferase
C;Keywords: dimer; polymorphism; transferase
F;2-218/Product: glutathione transferase class mu,
   В
                                  ş
                                                                      밁
                                                                                                      Š
                                                                                                                                          밁
                                                                                                                                                                            Q
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                             Query Match
                                  176 LYCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                        121
                                                                                                        116 ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFWLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                          61 PYLIDGAHKITQSNAILCYIARKHNLCGETEEEKIRVDILENQTMDNHMQLGMICYNPEF
                                                                                                                                                                                  56
                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                    1 MPMILGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNL
LKDFISRFEGLEKISAYMKSSRFLPRPVFSKMAVWG
                                                                        EKLKPKYLEELPEKLKLYSEFLGKRPWFAGNKITFVDFLVYDVLDLHRIFEPKCLDAFPN 180
                                                                                                                                                                 PYYIDGDYKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                         MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                           l Similarity
92; Conserv
                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                          39.7%; Score 467.5; DB 2 42.6%; Pred. No. 1.9e-33;
                                                                                                                                                                                                                                                                                            39;
                                                                                                                                                                                                                                                                                           Mismatches
                                    211
                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                                                                                                                                                                            ; 08
                                                                                                                                                                                                                                                                                                                                                                 GSTM1 #status
                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                 predicted
                                                                                                                                                                                                                                                                                           5.
                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                          120
                                                                                                                                                                              115
                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                      55
```

Search completed: May 20, 2003, 11:39:23 Job time: 9.41126 secs

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                     Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                  Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein - protein search, using sw model
  33302284
33302284
3330284
3330284
3330284
3330284
3330284
3330284
3330284
3330284
                                                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                   BB BB
  Score
                                                                                                                                                                                                                                                                                                                                                                                                                                   seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-081-408-4
1179
1 MSPILGYWKIKGLV
                                                                                                                                                                                                                                                                                                    Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Мау
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112892 seqs, 41476328 residues
  200.05
                                                                                                                                                                                                                                                                                                                                                                                 SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MSPILGYWKIKGLVQPTRLL....IAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.5
Copyright (c) 1993 - 2003 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20, 2003, 08:02:28; Search time 5.14571 Seconds
                                                                                                                                                                                                                                                                                                     Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gapext
                                                                                                                                                                                                                                                        GT26_SCHJA
GT27_SCHMA
GT26_SCHMA
GT29_FASHE
GT27_FASHE
GT26_FASHE
GT26_FASHE
GTM1_MOUSE
GTM4_HUMAN
GTM6_MOUSE
GTM2_HUMAN
GTM0_CRILO
GTM1_HUMAN
GTM2_HUMAN
GTM2_HUMAN
GTM3_RAT
GTM3_RAT
GTM3_RAT
GTM3_RAT
GTM3_RAT
GTM3_RAT
GTM3_RAT
GTM3_ROUSE
GTM3_HUMAN
GTM5_CHICK
GTM1_DERPT
GTM3_BUSH
GTP_DIRIN
GTP_DIRIN
GTP_PIGAU
GTP_BUGAN
GTP_BUGAN
GTP_BUGAN
GTP_BUGAN
GTP_CRIMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (without alignments)
1757.161 Million cell updates/sec
                                                                                                                                                                                           P08515 schistosoma
p35661 schistosoma
p15964 schistosoma
p56598 fasciola he
p31670 fasciola he
p31671 fasciola he
p30112 fasciola he
p30112 fasciola he
p10649 mus musculu
p04905 rattus norv
Q03013 homo sapien
Q35660 mus musculu
                                                                                                                                 P46409
P28161
P16413
Q00285
P30116
P15626
P09488
  P21266
P48774
P464136
P464219
P46427
P46427
P81942
Q60550
P80031
P09211
                                                                                              P46439
P08009
P08010
P19639
                                                                                                                                                                                                                                                                                                     Description
                                                                     5 homo sapien
4 mus musculu
5 gallus gall
                                                                                              6 mesocricetu
6 mus musculu
8 homo sapien
9 homo sapien
9 rattus norv
0 rattus norv
0 mus musculu
                                                                                                                                                          cavia porce
                                             onchocerca
                                                     dermatophag
dirofilaria
                                                                                                                                                                                    oryctolagus
                    sus scrofa
                                   bufo bufo
          homo sapien
                                                                                                                                                                            sapien
```

	44	4 4 3 2	41	40	39	38	37	36	35	34
	198.5	204.5	214.5	219.5	230	233	235	236	237	237
	16.8	17.3 17.0	18.2	18.6	19.5	19.8	19.9	20.0	20.1	20.1
	221	210 221	223	208	209	209	209	209	209	209
			-	μ.	Н	<u>, , , , , , , , , , , , , , , , , , , </u>	_	_	μ	
ALIGNMENTS	GTA2_MOUSE GTA1_MOUSE	GTP2_BUFBU GTA2_RAT	GTA1_RABIT	GTP_CAEEL	GTP_BOVIN	GTP1_MOUSE	GTP_MACMU	GTP_CRILO	GTP_RAT	GTP2_MOUSE
	P10648 п P13745 п					_	Q28514 п		P04906 r	
	mus musculu	bufo bufo (pryctol	caenorhabdi	bos taurus	mus musculu	macaca mula	cricetulus	rattus r	mus muscul

\$	R R R R R R R R R R R R R R R R R R R
MEDLINE-95156484; PubMed-78 MCTique M.A., Williams D.R. "Crystal structures of a sc glutathione S-transferase f with the leading antischist J. Mol. Biol. 246:21-27(199 -i- FUNCTION: CONJUGATION C OF EXOGENOUS AND ENDOGE -i- FUNCTION: GST ISCENZYME PARASITE DETOXIFICATION SUSPECTED INCLUDING A R HAEMATIN IN THE PARASIT -i- CATALYTIC ACTIVITY: RX -i- SUBUNIT: HOMODIMERi- MISCELLANEOUS: THERE AR S.JAPONICUMi- SIMILARITY: BELONGS TO	[2] REVIS SMITCH MITCH MITCH PROC. [3] [3] X-RAY MEDLI Lim K Lim K Clim K A RAY N-RAY
REVISIONS. Smith D.B., Davern K.M., Board P.G., Tiu W.U., Garcia E.G., Mitchell G.F.; Mitchell G.F.; Proc. Natl. Acad. Sci. U.S.A. 84:6541-6541(1987). [3] X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS). MEDLINE-95276631; PubMed-7538846; Lim K., Ho J.X., Keeling K., Gilliland G.L., Ji X., Ruker F., Carter D.C.; "Three-dimensional structure of Schistosoma japonicum glutathione transferase fused with a six-amino acid conserved neutralizing epitope of 9p41 from HIV."; Protein Sci. 3:2233-2244(1994). [4] X-RAY CRYSTALLOGRAPHY (2.6 ANGSTROMS).	

restrictions

g

EMBL outstation

```
RESULT
GT27_S
    8
                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 218
                                                                                                                                                                                                                                                                                                                                                              _SCHMA
   This SWI
                                                                                                                                                                                                                                        Schistosoma mansoni (Blood fluke).
Eukaryota; Metazoa; Platyhelminthes;
Schistosomatoidea; Schistosomatidae;
                                                                                                                                                                                                                                                                            01-JUN-1994 (Rel. 29, Created)
01-JUN-1994 (Rel. 29, Last sequence update)
01-NOV-1995 (Rel. 32, Last annotation update)
Glutathione S-transferase 26 kDa (EC 2.5.1.18)
antigen) (GST class-alpha)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
PIR; /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              use by modified
                                                                                                                                                                 MEDLINE-92131046; PubMed-1775156; Wright M.D., Harrison R.A., Melder A.M., Newport Another 26-kilodalton glutathione S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PDB;
PDB;
PDB;
PDB;
                                                                                                                                                                                                                                                                                                                                       P35661;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities
                                                                                                                                                          mansoni."
                                                                                                                                                                                                         SEQUENCE FROM
                                                                                                                                                                                                                              Schistosomatoidea;
NCBI_TaxID=6183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Transferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ب
                                                 OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.
FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN THE PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF HAEMATIN IN THE PARASITE GUT.
CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-glutathione.
SUBUNIT: HOMODITWER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ween the Swiss Institute of Bioinformatics
European Bioinformatics Institute. There a
by non-profit institutions as long as i
                                   SUBUNIT: HOMODIMER. SIMILARITY: BELONGS
                                                                                                                               Biochem. Parasitol. 49:177-179(1991). FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IGNE; 30-NOV-94.
IGTA; 07-FEB-95.
IGTB; 01-DEC-95.
IB8X; 12-APR-99.
SWISS-PROT entry is copeen the Swiss Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                         KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SCHMA
                                                                                                                                                                                                                                                                                                                                                                                                           KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                       DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A26484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pro; IPR004046; GST_Cterm.
Pro; IPR004045; GST_Nterm.
PF00043; GST_C; 1.
PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   al Similarity
218; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               M14654; AAB59203.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   non-profit institutions as long and this statement is not removed. requires a license agreement (See lan email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; Antigen; Multigene family; 3D-structure 218 AA; 25498 MW; 5E2AC418BD0EF13F CRC6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
llarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A26484
                                                                                                                                                                                                      N.A.
                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                   TO THE
 copyright. It is produce tute of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1179; DB 1;
Pred. No. 1.8e-98;
                                                                                                                                                                                                                                                                                                                                                   PRT;
                                   GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                   SUPERFAMILY.
                                                                                                                                                                                                                                         Trematoda; |
Schistosoma
                                                                                                                                                                                                                                                                                                                                                  218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rmatics and the I
There are no resting as its content
                                                                                                                                                                                                                                                                                                                                                  ⋛
            produced through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                            218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Usage
                                                                                                                                                                                                                                                                                       (GST
                                  ALPHA FAMILY.
  and
                                                                                                                                                                                                                                                    Digenea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CRC64;
                                                                                                                                                                    ၀ှု ဂ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  indels
                                                                                                                                                                   .R., Mitchell
f Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ν̈́
                                                                                                                                                                                                                                                                                        26) (SM26/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                    Strigeidida
            D)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
  collaboration
- outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                              ရ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 180
                                                                                                                                                                                                                                                                                                                                                     01-APR-1990 (Rel. 14, Created)
01-APR-1990 (Rel. 14, Last sequence upda
01-NOV-1995 (Rel. 32, Last sequence upda
01-NOV-1995 (Rel. 32) (Last sequence upda
Glutathione S-transferase 26 kDa (EC 2.:
antigen) (GST class-alpha).
Schistosoma mansoni (Blood fluke).
Eukaryota; Metazoa; Platyhelminthes; Tra
Schistosomatoidea; Schistosomatidae; Sch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SCHMA
                                                                                                                                                                                                        Trottein F., Kieny M.P., Verwaerde C., Torpier G., Balloul J.-M., Schmitt D., Lecocg J.-P., Capron A.: "Molecular cloning and tissue distribution of a 26 Schistosoma mansoni glutathione S-transferase."; Mol. Biochem. Parasitol. 41:35-44(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                    MEDLINE=90271935; PubMed=1693415;
Henkle K.J., Davern K.M., Wright M.D., Ran
"Comparison of the cloned genes of the 26-
glutathione S-transferases of Schistosoma
                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN-Puerto Rican;
MEDLINE-90348716; PubMed-2385266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             P15964;
01-APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF00043; GST_C; Pfam; PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M73624; -; NOT_ANNOTATED_CDS PIR; A45556; A45556. HSSP; P08515; 1GTA.
                                                                                                                                                                 SEQUENCE OF 8-218 FROM N.A. STRAIN-Puerto Rican;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transferase;
                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=6183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
. Biochem. Parasitol. 40:23-34(1990).

FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE I PROCEED STATES.

OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.

FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE: PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MAPKLGYWKIKGLVQPTRLLLEYLGERYEERLYDRNDGDVWRNEKFKLGLDFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SCHMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QRIENLPPIKNYLNSNRYIKWPLQGWSATFGGGDAPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DFLNQLPGMLKMFEDRLSHNTYLNGDKVTHPDFMLYDALDVVLYMDPKCLDNFPKLISFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e; Antigen;
218 AA; 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                84.0%;
82.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Multigene
25411 MW; E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 990; DE Pred. No. 1.5e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e family.
D8D3EE9028B36185
                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                 n update)
                                                                                                                                                                                                                                                                                                                                                          Trematoda; |
Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          218
                                                                                                    Ramos A.J., Mitchell G.F.;
26- and 28-kilodalton
Dma japonicum and Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19;
                                                                                                                                                                                                                                                                                                                                                                                                                  (GST
                                                                                                                                                                                                                                                                                                                                                                        Digenea; Strigeidida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                   Pierce R.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                  26)
                                                           WIDE NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                  (SM26/1
      ဝ္
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
GT29_FASHE
ID GT29_F
AC P56598
AC P56598
DT 15-DEC
DT 15-DEC
DT 15-DEC
DE Class-
OS Fascio
OC Enkary
OC Echino
OX NCBLT
RN (1)
RN HEDLIN
RA PANACC
RT THOSE
RT TEAS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 174
                                                                                                                                                                                                                                                                                                                                                                         GT29_FASHE STANDAKU;
956598;
15-DEC-1998 (Rel. 37, Created)
15-DEC-1998 (Rel. 37, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation updat
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-1998 - Created (Rel. 37)
15-DEC-199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M31106; AAA298888.1; -.
EMBL; M26913; AAA29889.1; -.
PIR; A45523; A45523
HSSP; P08515; 1GTA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                           Calass-aipha).
Fasciola hepatica (Liver fluke).
Eukaryota; Metazoa; Platyhelminthes; Trematoda; Digenea;
ביייית מאלי Echinostomata; Fascioloidea; Fasciolidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          - - -
                                                                                                                                                                                                                                                                                                                                                                      class-alpha)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF000403; GST_C; 1
Pfam; PF02798; GST_N; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a between the Swiss Institute of Bioinformatics and the EMBI
                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE=92155306; PubMed=1740183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transferase;
  MEDLINE-94039664; Po
Panaccio M., Wilson
                                                          ERRATUM
                                                                                               Panaccio M., Wilson L.R., Crameri S. "Molecular characterization of CDNA transferases of Fasciola hepatica."; Exp. Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                                                         NCBI_TaxID-6192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ـــ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HAEMATIN IN THE PARASITE GUT.

CATALYTIC ACTIVITY: RX + glutathione - HX + R-S-glutathione.

SUBUNIT: HOMODIMER.

TISSUE SPECIFICITY: TEGUMENT AND IN SUBTEGUMENTARY PARENCHYMAL

CELLS. GST 26 MAY BE ACTIVELY EXCRETED BY ADULT WORMS.

MISCELLANEOUS: THERE ARE AT LEAST THREE ISOENZYMES OF GST IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KCIEDLPQIKNYLNSSRYIKWPLQGWDATFGGGDTPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DFLNKLPGRLKMFEDRLSNKTYLNGNCVTHPDFMLYDALDVVLYMDSQCLNEFPKLVSFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GDFKLTQSMAIIRYIADKHNMLGACPKERAEISMLEGAVLDIRMGVLRIAYNKEYETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MAPKFGYWKVKGLVQPTRLLLEHLEETYEERAYDRNEIDAWSNDKFKLGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . MANSONI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              h 78.6%;
Similarity 79.8%;
74; Conservative 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; Antigen; Multigene
218 AA; 25401 MW; (
  PubMed-8224094;
on L.R., Crameri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 927; DB 1;
Pred. No. 6.3e-76;
5; Mismatches 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e family.
061A6548A842D6E8 CRC64;
     S.L.,
                                                                                                                                                                         S.L.,
                                                                                                                                                  sequences
                                                                                                                                                                                                                                                                                                                                                                                             update)
2.5.1.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        There are no
                                                                                                                                                                      Wijffels G
  Wijffels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Usage
                                                                                                                                             els G.L.,
encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 218;
     ۵
                                                                                                                                                                                                                                                                                                                                                                                             (GST1) (FH1) (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
     .L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          restrictions on
     Spithill
                                                                                                                                               Spithill T.W.; glutathione S-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL outstation
                                                                                                                                                                                                                                                                                                  Fasciola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               commercial
     Σ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

7_FASHE GT27_I

STANDARD;

PRT;

217

₿

GT27_FASHE P31670; 01-JUL-1993 15-DEC-1998 15-DEC-1998

01-JUL-1993 (Rel. 26, Created)
15-DEC-1998 (Rel. 37, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation update)
Glutathione S-transferase 26 kDa 47 (EC 2.5

y (EC 2 =

2.5.1.18)

(GST47)

Fasciola hepatica (Liver fluke).
Eukaryota; Metazoa; Platyhelminthes; Trematoda;

Fascioloidea;

Eukaryota; Metazoa; Platyhelm.
Echinostomida; Echinostomata;

(GST class-alpha).

NCBI_TaxID=6192;

SEQUENCE FROM N.A. MEDLINE-92155306;

PubMed-1740183;

```
δÃ
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transferase; Antigen; Multigene family.

INIT_MET 0 0 BY SIMILARITY.

CONFLICT 22 22 Y - Y (IN REF

CONFLICT 110 111 DP -> VS (IN REF

CONFLICT 189 189 A -> P (IN REF

CONFLICT 220 AA; 25598 MW; 2789F150B75C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; A00993; CAA00118.1; HSSP; P31670; 1FHE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Crameri S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Patent number WO9008819, 09-AUG-1990.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                    183
                                                                                                                                                                                                                                                                                             185
                                                                                                                                                                                                                                                                                                                          123
                                                                                                                                                                                                                                                                                                                                                       125
                                                                                                                                                                                                                                                                                                                                                                                    63
                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                            4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         տ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CATALYTIC ACTIVITY: RX + glutathione = HX + SUBUNIT: HOMODIMER. SIMILARITY: BELONGS TO THE GST SUPERFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NO EXOGENOUS AND ENDOCENOUS HYDROPHOBIC ELECTROPHILES. FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF HARMATIN IN THE PARASITE GUT.
                                                                                                                                                                                                                                                                                    AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP
                                                                                                                                                                                                                                                                                                                                                                                                  LTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                            LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK
                                                                                                                                                                                                                                                                                                                                                                                                                                            LGYWKIRGLQQPVRLLLEY-GEKYEEQIYERDDGEKWFSKKFELGLDLPNLPYYIDDKCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Parasitol. 77:385-385(1993).
                                                                                                                                                                                                                                                                  ALPSIKAYMESNRFIKWPLNGWHAQFGGGDAPP
                                                                                                                                                                                                                                                                                                                          DLPTTMKMWSDFLGKNPYLRGTSVSHVDFMVYEALDAIRYLEPHCLDHFPNLQQFMSRIE
                                                                                                                                                                                                                                                                                                                                                      KLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIE
                                                                                                                                                                                                                                                                                                                                                                                    LTQSLAILRYIADKHGMIGSTPEERARVSMIEGAAVDLRQGLSRISYDPKFEQLKEGYLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Y -> V (IN REF. 3).

DP -> VS (IN REF. 3).

A -> P (IN REF. 3).

; 27B9F150B75D101F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 709.5;
Pred. No. 1.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                             217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  , DB 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ဝ္ဗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                               124
                                                                                                                                                                                                                                                                                                                                                                                                                                            62
                                                                                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64
                                                                                                                                                                                                                                                                                                                             182
```

-

```
В
                                                                   δÃ
                                                                                              В
                                                                                                                     δÃ
                   Š
                                                                                                                                               밁
                                                                                                                                                                    Ş
                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INIT_MET
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  [2)
                                                                                                                                                                                                                                                                                                                                     EMBL; M77681; AAA29140.1; -.
EMBL; A00996; CAA00121.1; -.
PDB; 1FHE; 29-JUL-98.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR004046; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Parker M.W.;
"Crystallization, structural determination and analysis of
parasite vaccine candidate: Fasciola hepatica glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        parasite vaccine
S-transferase.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X-RAY CRYSTALLOGRAPHY (3 ANGSTROMS).
MEDLINE=98035725; PubMed=9367777;
Rossjohn J., Feil S.C., Wilce M.C.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Panaccio M., Wil
Exp. Parasitol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Panaccio M., Wilson L.R., Crameri S.L., Wijffels G.L., Spithill T.W., "Molecular characterization of cDNA sequences encoding glutathione Stransferases of Fascolal hepatica.", Exp. Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                    Transferase; Antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patent number WO9008819, 09-AUG-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 7-105 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-94039664; PubMed-8224094;
Panaccio M., Wilson L.R., Crameri
Exp. Parasitol. 77:385-385(1993).
 184
                       185
                                               124
                                                                        125
                                                                                              64
                                                                                                                       65
                                                                                                                                                                         v
                                                                                                                                                                       LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK
                                                           KLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIE
                                                                                                             LTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS
ALPKIKAYMESKRFIKWPLNGWAASFGAGDAPP
                      AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP 217
                                              ELPKTLKMWSDFLGDRHYLTGSSVSHVDFMLYETLDSIRYLAPHCLDEFPKLKEFKSRIE
                                                                                             LTQSVAIMRYIADKHGMLGTTPEERARISMIEGAAMDLRIGFGRVCYNPKFEEVKEEYVK
                                                                                                                                               LGYWKLRGLAQPVRLFLEYLGEEYEEHLYGRDDREKWMSEKFNMGLDLPNLPYYIDDKCK
                                                                                                                                                                                                                                                                                                                PF00043; GST_C; 1
PF02798; GST_N; 1
                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                     <u>Α</u>
                                                                                                                                                                                                                                                  25281 MW;
                                                                                                                                                                                                              59.3%;
58.2%;
                                                                                                                                                                                                                                                                                                   Multigene family; 3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Crameri S.L.,
                                                                                                                                                                                                 36;
                                                                                                                                                                                                                                                  T -> I (IN REF. 3).
RIGF -> FEEL (IN REF. 3).
; 0FB8BBFE63029E03 CRC64;
                                                                                                                                                                                                                          Score
                                                                                                                                                                                                              Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             M.C.J.,
                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                          699;
                                                                                                                                                                                                             8
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sexton
                                                                                                                                                                                                                _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wijffels
                                                                                                                                                                                                              DB 1;
.5e-55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           J.L.,
                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       G.L.,
                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Spithill
                                                                                                                                                                                                                          217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spithill T.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                 0
                                                                                                                                                                                               Gaps
                                                                     184
                                                                                              123
                                                                                                                                              63
                                                                                                                                                                       64
                                                                                                                                                                                                 0
```

```
RESULT 6
GT28_FASHE
ID GT28_F)
AC P31671
DT 15-DEC
DT 15-DEC
DE Class:
OC Echino
OC Echino
OC Echino
OC Echino
OC Echino
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITANS
ITAN
                                                                                                                                                                                                         Query Match
Best Local :
                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GT28_FASHE P31671;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUL-1993 (Rel. 26, Created)
15-DEC-1998 (Rel. 37, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation update)
Glutathione S-transferase 26 kDa 7 (EC 2.5.1.18) (GST7)
class-alpha).
Pasciola hepatica (Liver fluke).
Eukaryota; Metazoa; Platyhelminthes; Trematoda; Digenea;
Echinostomida; Echinostomata; Fascioloidea; Fasciolidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for commodified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Panaccio M., Wilson L.R., Crameri S., "Molecular characterization of cDNa; transferases of Fasciola hepatica.", Exp. Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-94039664; PubMed-8224094; Panaccio M., Wilson L.R., Crameri Exp. Parasitol. 77:385-385(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
MEDLINE-92155306; PubMed=1740183;
                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                     Transferase;
INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Crameri S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 8-217 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ERRATUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID-6192;
  64
                                            65
                                                                                           4
                                                                                                                                         տ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATALYTIC ACTIVITY: RX + glutathione = HX + SUBUNIT: HOMODIMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                      LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK 64
LTQSVAIMRYIADKHGMLGSTPEERARISMIEGAAMDLRIGFGLTCYNPKFEELKGDYLK
                 LTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS 124
                                                                                           LGYWKIRGLQQPVRLFLEYLGEEYEEHLYGRNDREKWLGDKFNMGLDLPNLPYYIDDKCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          M77680; AAA29139.1; -. A00994; CAA00119.1; -. P31670; 1FHE.
                                                                                                                                                                                                                                                                                                                                                                                                  PF00043; GST_C; 1.
PF02798; GST_N; 1.
                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                       188
217
                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                         Antigen; Multigene family.

0 0 BY SIMILARITY.
0 142 NDREKWIG -> MIGRNGWA (IN 188 196 IKEYMKSER -> SRYMSRA (IN 17 AA; 25196 MW; 0099E1F59E49A49E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD,
                                                                                                                                                                                                                                                        0
42
196
25196 N
                                                                                                                                                                                                         57.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Crameri S.L.,
                                                                                                                                                                                        29;
                                                                                                                                                                                                            Score 681;
Pred. No. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wijffels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          wijffels G.L., 
nences encoding
                                                                                                                                                                                                                                  DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₹
                                                                                                                                                                                                              DB 1;
.2e-54;
                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ရ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GST7) (FH7) (GST
                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .r.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A WIDE NUMBER
                                                                                                                                                                                                                                                                                                       REF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Spithill T.W.; glutathione S-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Spithill
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             t for in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a collaboration -
                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
G
                                                                                                                                                                                      Gaps
                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                      0
```

밁 δÃ 밁 Š

```
RESULT 7

GT26_FRASHE
ID GT26_F;
AC P30112
DT 01-APR
DT 15-DEC
DE GST c
CO ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OC ECHINO
OX MEDLIN
RA PANACIC
RA PANACIC
RA PANACIC
RA PANACIC
RA PANACIC
RA PANACIC
RA PANACIC
OC -!- SU
CC -!- 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
  Transferase;
INIT_MET
CONFLICT
CONFLICT
CONFLICT
CONFLICT
SEQUENCE
21
                                                                                                                                                                                                                                                                                                                    entities
or send a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GT26_FASHE P30112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 9-217 FROM N.A.

MEDLINE-93228188; PubMed-7682383;

Muro A., Rodriguez-Medina J.R., Hillyer G.V.;

Muro A. Rodriguez-Medina J.R., Hillyer G.V.;

"Sequence analysis of a Fasciola hepatica glutathione"
                                                                                                                                                                                                                                                                                                                                                                    use by non-profit institumodified and this statement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=94039664; PubMed=8224094; Panaccio M., Wilson L.R., Crameri Exp. Parasitol. 77:385-385(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Panaccio M., Wilson L.R., Crameri S. "Molecular characterization of cDNA transferases of Fasciola hepatica.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE=92155306; PubMed=1740183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Glutathione S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-APR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-DEC-1998
15-DEC-1998
                                                                                                                                                                                         EMBL; M77682; AAA29141.1; -.
HSSP; P31670; IFHE.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    J. Trop. Med. Hyg. 48:457-463(1993).

FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.

FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN THE PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF HAEMATIN IN THE PARASITE GUT.

CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-glutathione.

SUBURIT: HOMODIMER.

SUBCELLULAR LOCATION: Cytoplasmic.

SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                             s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way iffed and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   clone.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DLPKIKEYMKSERFIKWPLHSWTSPFGGGDAPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLPTTLKMWSDFLGDRQYLIGSSVSHVDFMVYEALDCIRYLAPQCLDDFPKLKEFKSRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP 217 :|:| :|:|| ::| ||| | : ||||| | ||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIE
                                                                                                                                               PF00043; GST_C;
PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                    an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                           requires a license agreement (See http://www.isb-sib
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 (Rel. 25, 0
8 (Rel. 37, 1
8 (Rel. 37, 1
     0
83
134
146
217 /
     AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                         0
83
134
146
       25242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last sequence up
                                                                                                                           Multigene
       ME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26 kDa
                         P N T
je family.
jy SIMILARITY.
jy SIMILARITY.
jy SIMILARITY.
j -> D (IN REF. 3).
p -> T (IN REF. 3).
p -> T (IN REF. 3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S.L., Wijffels G.L.,
NA sequences encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     on update)
(EC 2.5.1.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wijffels
     CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 G.L., Spithill T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GST51) (FH51)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Spithill T.W.; glutathione S-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fasciola
                                                                                                                                                                                                                                                                                                                                             .ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              184
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 8
GTM1_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-JUL-1989
01-JUL-1989
15-JUN-2002
Glutathione
                                                                                                                                                                                                                                                                                                                                              MEDITINE-93290350; PubMed-8512323;
Redihhart J., Pearson W.R.;
"The structure of two murine class-mu glutathione t: coordinately induced by butylated hydroxyanisole.";
Arch. Biochem. Biophys. 303:383-393(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=90094327; pubMed=2689439;
Townsend A.J., Goldsmith M.E., Pickett C.B., Cowan K.H.;
"Isolation, characterization, and expression in Escheric
two murine Mu class glutathione S-transferase cDNAs homo
rat subunits 3 (Yb1) and 4 (Yb2).";
J., Biol. Chem. 264:21582-21590(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDIINE-88330838; PubMed-3417659;
Pearson W.R., Reinhart J., Sisk S.C.,
"Tissue-specific induction of murine
butylated hydroxyanisole.";
J. Biol. Chem. 263:13324-13332(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                   MEDLINE=83109018; PubMed=6822548; Pearson W.R., Windle J.J., Morrow J.F., Increased synthesis of glutathione S-t
                                                                                                                                                                                                                                                                              Strausberg
                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. MEDLINE-93290350;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P10649;
PRELIMINARY SEQUENCE
MEDLINE-86042634; Pul
                                                                                                                anticarcinogenic
                                                                                                                                                                                                          PRELIMINARY SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE-90094327;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID-10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Glutathione
                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  184 DLPKIKAYMESEKFIKWPLNSWIASFGGGDAAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
                                                                    Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KLPEMIKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LTQSVAIMRYIADKHGMLGTTPEERARISMIEGAAMDLRMGFVRVCYNPKFEEVKGDYLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ELPTTLKMWSNFLGDRHYLTGSPVSHVDFMVYEALDCIRYLAPQCLEDFPKLKEFKSRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LGYWKIRGLQQPVRLLLEYLGEEYEEHLYGRDDREKWFGDKFNMGLDLPNLPYYIDDKCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                 Chem.
                                                                                                                                                                                                                                                        (FEB-2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Rel. 11, Createu,
(Rel. 11, Last sequence update,
) (Rel. 41, Last annotation update)
e S-transferase Mu 1 (EC 2.5.1.18) (GST class-mu
^-+ransferase GT8.7) (pmGT10) (GST 1-1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                    258:2052-2062(1983)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                antioxidants.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               57.7%;
58.7%;
                   õ
                                                                                                                                                                                                                                                        ៩
                                                                                                                                                                                                          1-40
                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            32;
                                                                                                                                                                                                                                                        EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 680; DB 1;
Pred. No. 7.7e-54;
2; Mismatches 56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Craniata; Vertebrata; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                             Cloning
                                                                                                                                        S-transferases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               , Anderson K. glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            217
                                                                                                                  and
                                                                                                                                        Benson A.M., Talalay P.; ransferases in response t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                  measurement
                                                                                                                                                                                                                                                           databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Escherichia coli of 
DNAs homologous to the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .S., Adler P
transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                 transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Euteleostomi;
; Murinae; Mus
                                                                                                                  of.
                                                                                                                messenger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P.N.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNAS
                                                                                                                                                                                                                                                                                                                                                                                                   genes
                                                                                                                                        ូ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
밁
                             γ
                                                                                        밁
                                                                                                                                  Š
                                                                                                                                                                                     밁
                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS REPRETED BOOKERS
                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; J03952; AAA37747.1; -.
EMBL; J04632; AAA37705.1; -.
EMBL; L13448; -; NOT_ANNOTATED
EMBL; BC003822; AAH03822.1; -.
PIR; A20831; A20831.
PIR; A20831; A20831.
PIR; 124735; 124735.
PIR; 124735; 124735.
PIR; 134159; A34159.
PIR; S33860; S33860.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00043; GST_¢;
Pfam; PF02798; GST_N;
PRINTS; PR01267; GSTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mitchell A.E., Morin D., Lame M.W., Jones A.D.; "Purification, mass spectrometric characterization, modification of murine glutathione S-transferases."; Chem. Res. Toxicol. 8:1054-1062(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=96189427; PubMed=8605288; Mitchell A.E., Morin D., Lame M.W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSSP; P04905; 2GST.
SWISS-2DPAGE; P10649;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-CD-1; TISSUE-Liver; MEDLINE-96189427; PubMed-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the European
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     data and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mannervik B., Alin P., Guthenberg Warholm M., Joernvall H.; "Identification of three classes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               [NIT_MET
183
                                              179
                                                                                          123
                                                                                                                                         119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ransferase;
                                                                                                                                                                                     63
                                                                                                                                                                                                                                    59
                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBUNIT: HOMODIMER.
SUBCELLULAR LOCATION: Cytoplasmic.
SUBCELLULAR LOCATION: Cytoplasmic.
MASS SPECTROMETRY: MW-25838.4; MW_ERR-2; METHOD-Electrospray
MASS SPECTROMETRY: MW-25838.4; MW_ERR-2; METHOD-Electrospray
SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATALYTIC ACTIVITY: RX + glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the Extropean Bioinformatics Institute. There are no restriby non-profit institutions as ing as its content
                           FKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MGI:95860;
                                                                                      KPEFLKTIPEKMKLYSEFLGKRPWFAGDKVTYVDFLAYDILDQYRMFEPKCLDAFPNLRD
FLARFEGLKKISAYMKSSRYIATPI
                                                                                                                                  KVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVC
                                                                                                                                                                                                       IDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETL 118
                                                                                                                                                                                                                                                                           ILGYWNVRGLTHPIRMLLEYTDSSYDEKRYTMGDAPDFDRSQWLNEKFKLGLDFPNLPYL
                                                                                                                                                                                                                                                                                                    ILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYY
                                                                                                                                                                                IDGSHKITQSNAILRYLARKHHLDGETEEERIRADIVENQVMDTRMQLIMLCYNPDFEKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        to several mammalian species:
                                                                                                                                                                                                                                                                                                                                                                              l Similarity
91; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     enzymatic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR004046; GST_Cterm IPR004045; GST_Nterm IPR003081; GST_mu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217 AA;
                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     267; GSTRNSFRASEM.
Multigene family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gstm1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          c properties.";
Sci. U.S.A. 82:7202-7206(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25839 MW;
                                                                                                                                                                                                                                                                                                                                                                                                 44.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 _ANNOTATED_CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOUSE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Guthenberg
                                                                                                                                                                                                                                                                                                                                                                           38;
                                                                                                                                                                                                                                                                                                                                                                         Score 481.5;
Pred. No. 4.3e
18; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A1EE3938F590B829 CRC64;
                                         203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ი.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cytosolic glutathione transferase correlation between structural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Jensson H.,
                                                                                                                                                                                                                                                                                                                                                               .3e-36;
71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ı
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               XH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ELECTROPHILES.
HX + R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tahir M.K.,
                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A WIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                covalent
                                                                                                                                                                                                                                                                                                                                                                                                                        217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for
                                                                                                                                                                                                                                                                                                                                                                         5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                          58
                                                                                                                                                                                122
                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                         1:
```

```
MUTAGENESIS OF CYS-UD.
MUTAGENESIS OF CYS-UD.
MEDLINE-91354218; PubMed-1883338;
Hsieh J.-C., Huang S.-C., Chen W.-L.,
"Cysteine-86 is not needed for the en:
transferase 3-3.";
7-0.704-297(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P04905;
13-AUG-1987
01-AUG-1988
16-OCT-2001
                                                           Ji X., Zhang P., Armstrong R.N., Gilliland G.L.;
"The three-dimensional structure of a glutathione S-t
the mu gene class. Structural analysis of the binary
isoenzyme 3-3 and glutathione at 2.2-A resolution.",
Biochemistry 31:10169-10184(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAT
                                                                                                                                                                                                                                                                                                                                                                                      Chang C., Saltzman 
"Identification of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. (CLONE PGTR200).
MEDLINE-86312882; PubMed-2875437;
Lai H.-C.J., Grove G., Tu C.-P.D.;
"Cloning and sequence analysis of a
S-transferase Yb submit.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-AUG-1987 (Rel. 05, Created)
01-AUG-1988 (Rel. 08, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Glutathione S-transferase YD1 (EC 2.5.1.18) (Chain (GST class-mu 1).
X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
You J.-H., Rose J., Tam M.F., Wang B.-C
"New crystal forms of a mu-class glutal
liver.";
                                                                                                                          MEDLINE-93041702;
                                                                                                                                                                                                                                                        purification, molecular properties Biochem. J. 292:379-384(1993).
                                                                                                                                                                                                                                                                                 Ben-Arie N., Khen M., Lancet D. "Glutathione S-transferases in
                                                                                                                                                                                                                                                                                                                                                                           androgen-
                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Rat liver glutathione cDNA clone and regulati phenobarbital.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ding G.J.-F.,
Pickett C.B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. MEDLINE-86224097;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-86033768; PubMed-3840477;
Ding G.J.-F., Lu A.Y.H., Pickett C.B.;
"Rat liver glutathione S-transferases.
of a Ybl cDNA clone and prediction of
sequence of the Ybl subunit.";
J. Biol. Chem. 260:13268-13271(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTM1_RAT
                                                                                                                                                                                                                                                                                                                         STRAIN-Wistar;
                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF 1-23.
                                                                                                                                                                                                                                                                                                           MEDLINE-93277499;
                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-87308179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 phenobarbital
                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           교
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleic Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=10116;
                                                                                                                                        -RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                              Biol.
                                                                                                                                                                                                                                                                                                                                                            Saltzman A.G., Sorensen N.S., Hiipakka R.A., Lication of glutathione S-transferase Ybi mRNA as repressed mRNA by cDNA cloning and sequence anal Chem. 262:11901-11903(1987).
                                                                                                                                                                                                                                                                                                                                                               Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Res.
                                                                                                                                                                                                                                                                                                         TISSUE-Olfactory epithelium; 99; PubMed-8503873;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            regulation
                                                                                                                                                                                                                                                                                                                                                                                                                                                    261:7952-7957(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                            PubMed=1420139;
                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed-3040722;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=3011803;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 V.D.-H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (CLONE PGTA/C44).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14:6101-6114(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S-transferases.
ion of the Ybl ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rodkey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Craniata; Vertebrata; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                   rat
            glutathione
                                                                                                                                                                                                                                                                     olfactory epithelium:
and odorant biotransformation.";
                                                                                                                                                                                         L., Lai Y.-C., Tam
enzymic activity or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            217

    Nucleotide sequence and
the complete amino acid

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bennett C.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence analysis of a Yb2
            S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                     S-transferase ary complex of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 liver

 (GST M1-1)

                                                                                                                                                                                          m M.F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Euteleostomi;
; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                          analysis.";
                                                                                                                                                                                                                                                                                                                                                                                                  Liao
                                                                                                                                                                                          glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ľ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A.Y.H.,
          from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        analysis
                                                                                                                                                                                                                                                                                                                                                                                                  s:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rattus
            rat
                                                                                                   from
                                                                                                                                                                                          Ś
```

```
EMBL; X04229; CAA27811.1; -
EMBL; M11719; AAA41287.1; -
EMBL; J02810; AAA41293.1; -
PIR; A24085; A24085
PIR; A2510; A25510.
PIR; A29794; A29794.
PIR; S17167; S17167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Armstrong R.N., Gililand G.L.;

"Structure and function of the xenoblotic substrate binding site of glutathione S-transferase as revealed by X-ray crystallographic analysis of product complexes with the diastereomers of 9-(S-glutathionyl)-10-hydroxy-9,10-dihydrophenanthrene.";

Blochemistry 33:1043-1052(1994).

-I- FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.

-I- FUNCTION: THE OLFACTORY GST MAY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANK BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANK BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANK BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANK BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY STANK BE CRUCIAL FOR THE ACUITY OF THE ACUITY OF THE ACUITY OF THE OLFACTORY STANK BE CRUCIAL FOR THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF THE ACUITY OF
                                                                                                                                                            CONFLICT
CONFLICT
STRAND
                                                                                                                                                                                                                 Transferase;
INIT_MET
MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                                  PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Acta
[9]
                                                   TURN
HELIX
TURN
STRAND
TURN
HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-94153886;
TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ji X., Johnson W.W.,
                                                                                                                                                                                                                                                                        PRINTS;
                                                                                                                                                                                                                                                                                                                               InterPro
                                                                                                                                                                                                                                                                                                                                              (nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATALYTIC ACTIVITY: RX + glutathione - HX + R-S-glutathione.
SUBUNIT: HOMODIMER OR HETERODIMER.
SUBCELLUAR LOCATION: CYtoplasmic.
SIBCELLUAR TOTALION: CYtoplasmic.
MISCELLANEOUS: RAT LIVER GLUTATHIONE S-TRANSFERASES (GST) CONS OF BIMARY COMBINATIONS OF THREE MAJOR CLASSES OF SUBUNITS
DESIGNATED: YA (25 KDA), YB (27 KDA) AND YC (28 KDA).
MISCELLANEOUS: YB SUBCLASS SELECTIVELY BINDS STEROID HORMONES.
SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       European Bioinformatics Institute. The by non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OLFACTORY PROCESS
                                                                                                                                                                                                                                                                                                                                                                                                                        6GSU;
6GSV;
6GSX;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1GSC;
2GST;
3GST;
4GST;
5GST;
6GST;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Crystallogr.
                                                                                                                                                                                                                                                                          PF00043; GST_C; 1.
PF02798; GST_N; 1.
S; PR01267; GSTRNSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRYSTALLOGRAPHY (2
                                                                                                                                                                                                                                                                                                                         IPR004046; GST_Cterm.
IPR004045; GST_Nterm.
IPR003081; GST_mu.
                                                                                                                                                                                                                                                                                                                                              IPR004046;
IPR004045;
                                                                                                                                                                                                                                                                                                                                                                                    08-NOV-96.
27-JAN-99.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-JAN-94.
31-OCT-93.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-NOV-96
   1686
1988
1988
114
114
617
617
                                                                                                                                                                                                                                                                        GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D 50:219-224(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed-8110735;
168
199
199
132
22
32
466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sesay M.A., Dickert L.,
                                                                                                                                                                                                                                                       family;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ANGSTROMS).
                                                                                                                                                                             C->S: NO CHANGE IN ACTIVITY.
I -> N (IN REF. 3).
KS -> NC (IN REF. 2).
                                                                                                                                                                                                                                                       3D-structure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S-TRANSFERASES (GST) CONSIST
R CLASSES OF SUBUNITS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Prasad S.M.,
                                                                                                                                                                                                                                                       Olfaction.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ammon H.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0£
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
```

```
밁
                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                        Ş
RESULT 10
GTM4_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                  TURN
TURN
TURN
TURN
TURN
TURN
HELIX
TURN
TURN
TURN
TURN
TURN
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TURN
TURN
HELIX
TURN
                                                                             SEQUENCE FROM N.A.
MEDILINE-93352467; PubMed-8349586;
COMSTOCK K.E., Johnson K.J., Rifenber
"Isolation and analysis of the gene a
glutathione S-transferase, GSTM4.";
J. Biol. Chem. 268:16958-16965(1993).
                                                                                                                                                                                                                         GTM4_HUMAN
Q03013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
HELIX
TURN
HELIX
                      MEDLINE-93228631; PubMed-8471052;
Zhong S., Spurr N.K., Hayes J.D., Wolf C.R.;
"Deduced amino acid sequence, gene structure and chro
of a novel human class Mu glutathione S-transferase,
Biochem. J. 291:41-50(1993).
                                                                                                                                       Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae;
NCBI_TaxID=9606;
                                                                                                                                                                                        01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Glutathione S-transferase Mu 4 (EC 2.5.1.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                 (GST class-mu 4).
                                                                                                                                                                                                                                                                           183
                                                                                                                                                                                                                                                                                           179
                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                           119
EQUENCE FRO
                                                                                                                                                                                                                                                                                                                                          63
                                                                                                                                                                                                                                                                                                                                                          59
                                                                                                                                                                                                                                                                                                                                                                           w
                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                          FKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                         IDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETL
                                                                                                                                                                                                                                                                                                                                                                          ILGYWNYRGLTHPIRLLLEYTDSSYEEKRYAMGDAPDYDRSQWLNEKFKLGLDEPNLPYL
                                                                                                                                                                                                                                                                                                                                                                                         ILGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYY
                                                                                                                                                                                                                                                                           FLARFEGLKKISAYMKSSRYLSTPI
                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
       FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                        200
210
217
                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
72
83
90
115
117
117
129
129
130
142
154
171
171
171
171
171
171
                                                                                                                                                                                                                                                                                                                                                                                                                                        70
82
84
114
115
118
128
129
121
141
143
154
169
176
188
189
189
196
201
211
                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                  40.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                            MW.
                                                                                                                                                                                                                                                                                                                                                                                                           38;
                                                                                                                                                                                                                                                                                                                                                                                                          Score 481.5;
Pred. No. 4.3e
38; Mismatches
                                                                                                        Rifenbery
                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                           203
                                                                                                                                                                                                                                                                                                                                                                                                                                            2ACE8D49DA785118
                                                                                                                                                                                                                                                                                                                                                                                                                  No. 4.3e-36;
                                        structure and chromosomal location
                                                                                                 and
                                                                                                                                                                                                                                  218
                                                                                                         .
                                                                                                 CDNA
                                                                                                                                                                                                                                  ያ
                                                                                                                                                 Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                           DB
                                                                                                Henner W.D.;
NA for a huma
                                                                                                                                                                                          (GSTM4-4) (GTS-Mu2)
                                                                                                                                                                                                                                                                                                                                                                                                                          ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                            CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                 human
                                                                                                                                                         Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                           217;
                                                                                                 š
                                                                                                                                                                                                                                                                                                                                                                                                           ū
                                                                                                 class
                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                          118
                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                           58
                                                                                                                                                                                                                                                                                                                                           122
```

1:

```
STITIES AND DESCRIPTION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE
                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <del>+ + +</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Biochemistry 38:16187-16194(1999).

- FUNCTION: CONUUGATION OF REDUCED GLUTATHIONE TO A WIDIO OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES ACTIVE ON 1-CHLORO-2,4-DINITROBENZENE.

- CATALYTIC ACTIVITY: RX + glutathione - HX + R-S-glutai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=94263230: PubMed=8203914;
Comstock K.E., Widersten M., Hao X.Y., Henner W.D.,
"A comparison of the enzymatic and physicochemical phuman glutathione transferase M4-4 and three other henzymes.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -!- SUBCELLULAR LOCATION: Cytoplasmic.
-!- TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF
-!- SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAM!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Patskovsky Y.V., Patskovska L.N., Listowsky I.;
"An asparagine-phenylalanine substitution accounts
differences between hOSTM3-3 and other human class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHARACTERIZATION.
MEDLINE-94263230;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Taylor J.B., Oliver J., Sherrington R., Pemble "Structure of human glutathione S-transferase Biochem. J. 274:587-593(1991).
                                                                                                                                                                                                                                                                                                                                                                    Transferase;
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam; PF00043; GST_C; 1. Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-20056038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (3.3 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE-Lymphocytes; MEDLINE-91174774; P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 39-160 FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Strausberg
Submitted
                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                         PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S-transferases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    interPro;
                              56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   L; M96234; AAA57347.1; -.
L; M96233; AAA57346.1; -.
L; X68677; CAA48637.1; -.
L; BC015513; AAH15513.1; -.
L; X56837; CAA40167.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUBUNIT: Homodimer.
PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4GTU; 14-JAN-00.
                                                                      MSMTLGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNL
                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG - - - - - DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Biochem. Biophys.
                                                                                                                                                                           95; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HGNC:4636; GSTM4.
                                                                                                                                                                                                                                                                                                                                                                                                                      PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IPR003081; GST_mu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR004045;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (OCT-2001) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IPR004046; GST_Cterm
                                                                                                                                                                                                                                                                 212
218
                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                           Multigene family;
                                                                                                                                                                                                                                                                         AA;
                                                                                                                                                                                                                      17
37
212
25561 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PubMed=2006920;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PubMed-10587441;
                                                                                                                                                                                                40.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GST_Nterm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  311:487-495(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the EMBL/GenBank/DDBJ databases
                                                                                                                                                                         37;
                                                                                                                                                                                                                                                                 Lly; 3D-structure.

MSWT -> MPMI (IN REF. 2).

I -> M (IN REF. 1; AAA57346

D -> G (IN REF. 2).

V -> M (IN REF. 2).

W; 35E96FA54D566B1E CRC64;
                                                                                                                                                                                             Score 480.5; DB 1
Pred. No. 5.3e-36;
                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pemble S.E.;
ferase class
                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HX + R-S-glutathione
                                                                                                                                                                         79;
                                                                                                                                                                                                                                                                                                                                        REF. 2).
; AAA57346).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TO A WIDE
                                                                                                                                                                                                                    Length
                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ., Mannervik B.;
L properties of
c human Mu class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for catalytic mu glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genes.";
                                                                                                                                                                                                                      218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER
                                                                                                                                                                    5.
                                                                                                                                                                    Gaps
                                                                      60
                                                                                                                    55
                                                                                                                                                                    ۳
```

Š 밁 Ş

```
Вb
                       8
                                                                                                         GTM6_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                              Query Match
Best Local
                                                                                                                              InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
InterPro; IPR003081; GST_mu.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     O3560; O35661;
15.JUN-2002 (Rel. 41, Created)
15.JUN-2002 (Rel. 41, Last sequence update)
15.JUN-2002 (Rel. 41, Last annotation update)
15.JUN-2002 (Rel. 41, Last annotation update)
Glutathione S-transferase Mu 6 (EC 2.5.1.18)
(Glutathione-S-transferase class M5).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochem.
                                                                                                      Transferase; SEQUENCE 2:
                                                                                                                                                                                                                           EMBL;
HSSP;
                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                         the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed. entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTM6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOUSE
                                                                                                                                                                                                                                                                        entitles requires a license agreement (s or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                              This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                De Bruin W.C.C., te Morsche R.H.M., Townsend A.J., Wieringa B., Peters F "Identification of a novel murine gl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A., AND TISSUE SI
STRAIN-FVB, 129/Sv, and C57BL/6;
MEDLINE-98149729; PubMed-9480867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GSTM6 OR GSTM5
                                                                                                                                                                                                                                                                                                                                                between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <del>-</del>
                                                                                                                                                                                                             MGD; MGI:1309467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13
\vdash
                         ш
                                                                                                                                                                                                                                                                                                                                                                                                            CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-glut
SUBUNIT: HOMODIMER (BY SIMILARITY).
SUBCELLULAR LOCATION: Cytoplasmic (By similarity).
TISSUE SPECIFICITY: EXPRESSED IN LIVER, STOMACH AND
INTESTINE. NOT EXPRESSED IN SPLEEN, KIDNEY, COLON, H
                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                     BRAIN OR LUNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOUSE
                       MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL 55
                                                                                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced through
MPVTLGYWDIRGLGHAIRLLLEYTETGYEERRYAMGDAPDYDRSQWLNDKFKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LKDFISRFEGLEKISAYMKSSRFLPKPLYTRVAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EXLKPEYLEELPTMMQHFSQFLGKRPWFVGDKITFVDFLAYDVLDLHRIFEPNCLDAFPN
                                                                                                                                                                                                                          AJ000413; CAA04061.1; -. AJ000412; CAA04060.1; -. P09488; IGTU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ETIKVDFLSKLPEMIKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PYLIDGAHKITQSNAILCYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDF
                                                    l Similarity
95; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             J. 330:623-626(1998).
TION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE
                                                                                                                                                                                                                                                                                                                                                the Swiss Institute
                                                                                                        218
                                                    Conservative
                                                                                                     Multigene family.
18 AA; 25628 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                40.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nga B., Peters W.H.M.;
novel murine glutathione
                                                  Score 478.5;
Pred. No. 8.1e
95; Mismatches
                                                                                                                                                                                                                                                                                                                                               of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Craniata; Ver
Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPECIFICITY.
                                                                                                     324B20CC6C35594B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wagenmans M.J.M., Alferink J.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218
                                                                                                                                                                                                                                                                                                                There are no restrictions as its content is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vertebrata;
thi; Muridae;
                                                   .1e-36;
es 81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  211
                                                                            DB 1;
                                                                                                                                                                                                                                                                                           http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                       Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S-transferase
                                                                                                                                                                                                                                                                                                                                             and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R-S-glutathione
                                                                            Length
                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       class-mu
                                                                                                                                                                                                                                                                                                        δĢ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Euteleostomi;
; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                               HEART,
                                                                                                                                                                                                                                                                                                         and
                                                                                                                                                                                                                                                                                                                                                                                                                           SMALL
                                                                            218;
                                                                                                                                                                                                                                                                                                                                                EMBL
                                                                                                                                                                                                                                                                                                                                               a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                  5
                                                                                                                                                                                                                                                                                                         for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                class
                                                                                                                                                                                                                                                                                                                                ons
                                                Gaps
60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                己
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                      ö
                                                  ۲
```

```
STATE OF THE PRINCIPLE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
₽
                                       δÃ
                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTMU_RABIT
P46409;
01-NOV-1995
01-NOV-1995
15-JUL-1999
Glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lee S.H., Lee S.H., Han J.S., Kim Y.S., Koh J.K.;

"Cloning and expression of a cDNA for mu-class glutathione
S-transferase from rabbit liver.";
Arch. Biochem. Biophys. 318:424-429(1995).

-i- FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER
OF EXOCEROUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.

-i- CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-glutathione.
                                                                                                                                                                                                     INIT_MET
                                                                                                                                                                                                                                                                       Pfam; PF00798; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PF07775: PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE-Liver;
MEDLINE-95251394; PubMed-7733673;
Lee S.H., Lee S.H., Han J.S., Kim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for con
                                                                                                                                                                                                                                                                                                                                                InterPro; IPR004046; GST_Cterm
InterPro; IPR004045; GST_Nterm
InterPro; IPR003081; GST_mu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entities requires a license agreement (See http://www.isb-sib.or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                               Transferase; Multigene family.
                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; L23766; AAA69665.1; HSSP; P09488; IGTU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56
4
                                               G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBCELLULAR LOCATION: Cytoplasmic. TISSUE SPECIFICITY: WELL EXPRESSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LKDFMARFEGLRKISAYMKTSRFLPSPVYLKQATWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EKRKPEFLKGLPDQLKLYSEFLGKQPWFAGDKITFADFLVYDVLDQHRWFEPTCLDAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PYLIDGSHKVTQSNAILRYLGRKHNLCGETEEERIRVDILENRVMDTRIQMGMLCYXADF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                    LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI 59
                                                                                                                   Similarity
                                                                                                                                                                                                     217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Rel. 32, Created)
(Rel. 32, Last sequence update)
(Rel. 38, Last annotation update)
S-transferase Mu 1 (EC 2.5.1.18)
                                                                                                 Conservative
                                                                                                                                                                                                                               0
                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
RMLLEYTDTSYEEKKYTMGDAPNYDQSKWLSEKFTLGLDFPNLPYLI 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lagomorpha;
                                                                                                                                                                                                     25286 MW;
                                                                                                                      44.6%;
                                                                                                 36;
                                                                                              Score 477.5;
Pred. No. 9.9e
36; Mismatches
                                                                                                                                                                                                                          ву
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                             785EA932C543ECB2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Leporidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 217
                                                                                              9.9e-36;
.ches 77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RABBIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oryctolagus
                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GST Mu I)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LIVER,
                                                                                                                                           Length
                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BRAIN,
                                                                                                                                                   217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a collaboration
                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     class-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .ch/announce/
                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            115
                                                                                                 ۲.
```

δõ

60

DGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK

GSTRNSFRASEM

family;

3D-structure

```
RESULT 13
GTM2_HUMAN
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
MEDLINE-9129584; PubMed-2034681;
Vorachek W.R., Pearson W.R., Rule G.S.;
"Cloning, expression, and characterization of a citransferase from human muscle, the product of the Proc. Natl. Acad. Sci. U.S.A. 88:4443-4447(1991).
                    InterPro; IPR004046; GST_Cterm
InterPro; IPR004045; GST_Nterm
InterPro; IPR003031; GST_Mu.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                            "Crystal structure of human class mu glutathione transferase GSTM2-2. Effects of lattice packing on conformational heterogeneity.";
J. Wol. Biol. 238:815-832(1994)
-I- FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-APR-1993
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-APR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTM2_HUMAN P28161;
                                                                                                                                                                                                                  entities requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bloinformatics Institute. There are no restitute by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=94238693; PubMed=8182750; Raghunathan S., Chandross R.J., Kretsinger Penington C.J., Rule G.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GSTM2 OR GST4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Glutathione
                                                                                                                                                                                                                                            modified and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X-RAY CRYSTALLOGRAPHY (1.85 ANGSTROMS)
                                                                                                  Genew;
                                                                                                                                                                                          EMBL; M63509; AAA60963.1;
                                                                                                                                                                                                                                                                                                                      -!- SUBCELLULAR LOCATION: Cytoplasmic.
-!- TISSUE SPECIFICITY: THIS IS A MUSCLE ISOZYME.
-!- SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            64
                                                                                                           A39375; A39375.

11NA; 31-JAN-94.

11NB; 31-JAN-94.

11NC; 31-JAN-94.

2GTU; 02-MAR-99.

3GTU; 29-JUL-99.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HVRFEGLPKISAYMKSSRFIRVPVFLKKATWTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KKRIEAIPQIDKYLKSSKYIAWPLQGWQATFGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PEYLKGLPEKLQLYSQFLGSLPWFAGDKITFADFLVYDVLDQNRIFVPGCLDAFPNLKDF
                                                                                                 HGNC:4634;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Rel. 25, Last so
(Rel. 41, Last an
S-transferase Mu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                  GSTM2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₿
                                                                                                                                                                                                                                http://www.isb-sib.ch/announce,
                                                                                                                                                                                                                                                                                                                                                                            + XH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of a class-mu glutat of the GST4 locus.";
                                                                                                                                                                                                                                                                                                                                                                                        ELECTROPHILES
                                                                                                                                                                                                                                            Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GSTM2-2)
                                                                                                                                                                                                                                                                                                                                                                           R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Allison
                                                                                                                                                                                                                                                                                                                         FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Euteleostomi;
                                                                                                                                                                                                                                                           restrictions
ent is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GST class-mu
                                                                                                                                                                                                                                                                                   EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               glutathione
                                                                                                                                                                                                                                                                                    a collaboration ~
                                                                                                                                                                                                                                              for
                                                                                                                                                                                                                                                                                   outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             123
```

```
RESULT 14
GTMU_CAVPO
ID MOMENT CAVPO
ID 16413
DT 01-AUG
DT 01-AUG
DT 01-NOV
DE Glutat
GN GSTM1.
OS CAVIA
OC EUKARY
OC Mammal
OX NCBIT
RN [1]
                                                                                                                    Ş
                                                                                                                                   밁
                                                                                                                                               Qy
                                                                                                                                                             밁
                                                                                                                                                                         Ş
                                                                                                                                                                                        밁
                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                         Best
                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                               Query Match
                                             P16413;
01-AUG-1990
01-AUG-1990
01-NOV-1995
                                                                                                                                                                                                                                          TURN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
STRAND
STRAND
TURN
Cavia porcellus (Guinea pig).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
NCBI_TaxID=10141;
[1]
                                                                                                                                                                                                                                                                                                                                                                                               STRAND
HELIX
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                    HELIX
TURN
                                                                                                                                                                                                                                                              HELIX
HELIX
                                                                                                                                                                                                                                                                                  STRAND
HELIX
                                                                                                                                                                                                                                                                                               STRAND
TURN
                                                                                                                                                                                                                                                                                                            STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                             STRAND
HELIX
                                 Glutathione GSTM1.
                                                                                                                                                                                                                                                                                                                                                          TURN
HELIX
TURN
                                                                                                                                                                                                                                                                                                                                                                                          TURN
                                                                         GTMU_CAVPO
                                                                                                                                                                                                                                                                                                                                HELIX
                                                                                                                                                                                                                                                                                                                                             HELIX
                                                                                                                                                                                                                                                                                                                                                  TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                          184
                                                                                                                      180
                                                                                                                                   124
                                                                                                                                                 120
                                                                                                                                                             64
                                                                                                                                                                                                                        Local
                                                                                                                                                                                                    G
                                                                                                                                                                                        4
                                                                                                        DGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRVGVSRIAYSKDFETLK 119
                                                                                                                                                                                     LGYWNIRGLAHSIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNLPYLI
                                                                                                                                                                                             LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI
                                                                                                                     KKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                 PEYLQALPEMLKLYSQFLGKQPWFLGDKITFVDFIAYDVLERNQVFEPSCLDAFPNLKDF
                                                                                                                                                            DGTHKITQSNAILRYIARKHNLCGESEKEQIREDILENQFMDSRMQLAKLCYDPDFEKLK
                                                                                                                                                                                                                       Similarity
                                     (Rel. 15, Created)
(Rel. 15, Last sequence update)
(Rel. 32, Last annotation update)
S-transferase B (EC 2.5.1.18) (GST
                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                             ξ,
                                                                       STANDARD;
                                                                                                                                                                                                                                                        147
149
150
151
169
176
189
197
                                                                                                                                                                                                                                                                                                                                             0
5
7
12
22
22
23
33
33
33
33
35
35
36
44
49
49
52
52
64
49
11
11
11
11
11
11
11
11
11
                                                                                                                                                                                                                       40.2%;
                                                                                                                                                                                                                                           25613 MW;
                                                                                                                                                                                                                  35
                                                                                                                                                                                                                       Score 473.5;
Pred. No. 2.
            Craniata; Vertebrata; Eute
Hystricognathi; Caviidae;
                                                                                                                                                                                                                                           25603A909482CA39 CRC64;
                                                                                                                                                                                                                  Mismatches
                                                                       217
                                                                                                        215
                                                                                                                      211
                                                                       B
                                                                                                                                                                                                                       .2e-
                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                            35,
78;
                                       В)
                                      (GST
                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                Indels
                  Euteleostomi;
                                      class-mu).
                                                                                                                                                                                                                              217;
                                                                                                                                                                                                                5
                                                                                                                                                                                                               Gaps
                                                                                                                                  183
                                                                                                                                                            123
                                                                                                                                                                                      63
                                                                                                                                                                                                  59
                                                                                                                                               179
                                                                                                                                                                                                                1;
```

```
RESULT 15
GTMU_CRILO
8
                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                 GTMU_CRILO
Q00285;
Q1-JUL-1993
Q1-JUL-1993
Q1-JUL-1998
Q1-DEC-1998
                                                                                                                                                                MEDLINE-91031445; PubMed-2226437;

de Saint Vincent B.R., Hyrien O., Debatisse M., Buttin G.;

"Coamplification of mu class glutathione S-transferase genes and adenylate deaminase gene in coformycin-resistant Chinese hamster fibroblasts.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP; P04905; 2GST.
InterPro; IPR004046; (
InterPro; IPR004045; (
InterPro; IPR003081; (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_W; 1.
PRINTS; PR01267; GSTRNSFRASEM.
Transferase; Multigene family.
SEQUENCE 217 AA; 25719 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Amino acid
liver.";
J. Biochem.
     EUX. J. BLOCHEM. 193:19-24(1990).

-!- FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROP-!- CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-!- SUBUNIT: HOMODIMER.
-!- SUBCELLULAR LOCATION: Cytoplasmic.
-!- SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU F
                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR; JX0095; JX0095.
HSSP; P04905; 2GST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -I- CATALYTIC ACTIVITY: RX + glutathione-i- SUBUNIT: HOMODIMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-90236961;
Kamei K., Oshino F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE.
TISSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        - SUBCELLULAR LOCATION: Cytoplasmic.
- SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY
                                                                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                 124
                                                                                                                                                                                                                                                                                                                                                                                                                             64
                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI
                                                                                                                                                                                                                                                                                                                                       ISRFEGLEKISSYMKSSRFLPKPL
                                                                                                                                                                                                                                                                                                                                                          KKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                               AEFLEGIPDKMKLFSQFLGKLPWFAGNKLTYVDFLAYDVLDQYRMLEPKCLEAFPNLKDF
                                                                                                                                                                                                                                                                                                                                                                                                      VDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCF
                                                                                                                                                                                                                                                                                                                                                                                                                           DGTHKLTQSNAILRYIARKHNLCGVTEEETIRMDILENQVMDIRMQLIMLCYSPDFEQKK
                                                                                                                                                                                                                                                                                                                                                                                                                                       DGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LGYWNIRGLTHPIRLILEYTNSGYEEKRYNMGDAPDYDRSQWLNEKFKLGLDFPNLPYLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             107:111-117(1990).
N: CONJUGATION OF REDUCED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=2332413;
R., Hara S.;
nce of glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GST_Cterm.
GST_Nterm.
GST_mu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 473.5;
Pred. No. 2.
                                                                                                                                                                                                                                                                                                                                                          203
                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                       207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D29F7951D4E9365E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S-transferase b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLUTATHIONE TO
                                                                                                                                                                                                                                                                              217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  es 73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
                                                                                                                                                                                                                                                                             ₹
                                     'C ELECTROPHILES.
HX + R-S-~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                        (Chain 3) (GST class-mu).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ELECTROPHILES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
       FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A WIDE NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               guinea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                þíg
                                                                                                          an
                                                                                                                                                                                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                                                                                                                                                                                      179
                                                                                                                                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲
```

```
В
                                                                                                                                                                             ρ
                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                              Search completed: May 20, 2003, 11:34:59 Job time : 6.14571 secs
                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                   Query Match 39.7
Best Local Similarity 43.4
Matches 89; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; X57489; CAA40726.1; -.
PIR; S13202; S13202.
HSSP; P04905; ZGST.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
InterPro; IPR003081; GST_mu.
Pfam; PF00043; GST_N; 1.
PFAM; PF00043; GST_N; 1.
PFAM; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                           PRINTS; PRU140; GOLDON, PRINTS; PRU140; GOLDON, PRINTLARITY.

TRANSFORASE; Multigene family.

O BY SIMILARITY.

O BY SIMILARITY.

17 aa; 25688 MW; 34D8A8FBDD8627C0 CRC64;
                                                                                                                                                  123
                                                                                              179 FKKRIEAIPQIDKYLKSSKYIAWPL 203
                                                                                                                                                                     119 KVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDEMLYDALDVVLYMDPMCLDAFPKLVC 178
                                                                          183 FLARFEGLKKISAYMKTSRFLRRPI 207
                                                                                                                                                                                                                     4 ILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYY 58
                                                                                                                                                ILGYWNVRGLTNPIRLLLEYTDSSYEEKKYTMGDAPDSDRSQWLNEKFKLGLDFPNLPYL 62
                                                                                                                                                                                                                                                                                                                                                                   39.7%; Score 468.5; DB 1; Length 217; 43.4%; Pred. No. 6.3e-35; tive 36; Mismatches 75; Indels 5.
                                                                                                                                                                                                                                                                                                                                                                     5:
                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                     ١...
```

```
Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                            Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No.
  512.5
505.5
500.5
500.5
500.5
500.5
477.5
474.5
473.5
473.5
456.5
56.5
                                                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         d. No. is the number of results predicted by chance to have a
re greater than or equal to the score of the result being printed,
is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-081-408-4
1179
1 MSPILGYWKIKGLV
                                                                                                                                                                                                                                                                                                                                                                                       Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        May 20, 2003, 10:12:24 ; Search time 15.0413 Seconds (without alignments) 2986.328 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        671580 segs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gapop 10.0 , Gapext 0.5
  SPTREMBL_21:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLL....IAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.5
Copyright (c) 1993 - 2003 Compus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sp_archea:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sp_mammal:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sp_bacteria:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sp_organelle:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sp_invertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sp_plant:*
sp_rodent:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sp_vertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sp_virus:*
                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                       219
223
                                                                                                                                                                                                                                                                                                                                                                                       B
    1111556661
                                                                                                                                                                                                                         5 13
3 Q90WM9
097117
1 Q8R516
Q9TSM5
Q9BEB0
Q9TSM4
Q27653
Q27653
Q16058
Q9U2183
1 Q9U231
1 Q9DU251
1 Q9DU251
                                                                                                                                                                                                                                                                      Q9XYL9
Q9N0V4
                                                                                                                                                                                                                                                                                                                   Q94745
Q25595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              671580
                                                                               O9tsm5 macaca fasc
O9beb0 macaca fusc
O9tsm4 macaca fasc
O27653 echinococcu
O16058 echinococcu
                                                                                                                                                                                                                                                                 Q94745 schistosoma
Q25595 clonorchis
Q9xyl9 fasciola gi
Q9n0v4 bos taurus
                                                                                                                                                                                                Q90wm9 xenopus lae
O97117 boophilus m
Q8r5j6 mus musculu
                                                                                                                                                                                                                                                                                                                                                                               Description
                                       Q91y83 cavia porce
Q9wu21 rattus norv
                     mus musculu
musculu
                5
                                                                 В
                                                                                                       Š
                                                                                                                                                                                                                                               SKERRRE TO COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT AND COCKETT
                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                        Matches
                     61
```

ALIGNMENTS

```
094745, PRELIMINARY; PRT; 218 AA. 094745, 01-FEB-1997 (TrEMBLrel. 02, Created) 01-FEB-1997 (TrEMBLrel. 02, Last sequence update) 01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                Grams S.V., Grams R., Korge G., Viyanant V., Upatham S.; "Cloning and sequencing of the 26 kDa glutathione S-transferase of Schistosoma mekongi."; Southeast Asian J. Trop. Med. Public Health 28:570-574(1997). EMBL; Y07663; CAA68944.1; ".
                                                                                                                                                                                                                                                                                                                           InterPro; IPRO04046; GST_Cterm
InterPro; IPRO04045; GST_Nterm
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Platyhelminthes; Schistosomatoidea; Schistosomatidae; NCBI_TaxID=38744;
                                                                                                                                                                                                                                                                           Transferase:
SEQUENCE 218 AA; 25486 MW; D3080620B19DE23A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Schistosoma mekongi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=98222395;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26kD glutathione S-transferase.
                                                                                                    1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                          MAPILGYWKIKGLYQPTRLLLEYLGEEYEERLYERNEGDAWRNEKFKLGLEFPNLPYYID
                                                                                                                                                                                                         Similarity
                                                                                                                                                                              89.0%; Score 1049; DB 5; Length 218; ilarity 89.4%; Pred. No. 1.5e~86; Conservative 11; Mismatches 12; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PubMed-9561610;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Trematoda; Digenea; Strigeidida; Schistosoma.
                                                                                                                                                                              0
                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                             120
                                                                               60
                                                                                                                                                                                 0
```

```
PERSULT PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPER
                                                                                                                                      RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
    BAPPAB
                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 129
Q9XYL9;
Q9XYL9;
01-NOV-1999
01-NOV-1999
01-JUN-2002
Glutathione;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence up
01-JUN-2002 (TrEMBLrel. 21, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam;
Transferase.
Transferase.
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
Hong S.-J., Lee D.-H.;
"Cloning and over expression
Clonorchis sinensis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Clonorchis sinensis.
Eukaryota; Metazoa; Platyhelminthes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q25595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID-79923;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Opisthorchiida; Opisthorchiata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Putative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Thesis (1996), Parasitology,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Sir
hes 129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       lonorchis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                             19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                   KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GDVKLTQSMAIIRYIADKHNMLGGSGKERAEITMLEGAVSDIRSGVSRIAYNKDFETLKV
                                                                                                                                                                                                                                   HRIEALPNIKAFMESDRFIKWPLNGWSAYFGGGDAPPK
                                                                                                                                                                                                                                                                                                                                                                          DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                PYLQQLPSTLRMWSQFLGNNSYLHGSTPTHLDFMFYEALDVIRYLDPTSVEAFPNLMQFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MAPVLGYWKIRGLAQPIRLLLEYVGDSYEEHSYGRCDGEKWQNDKHNLGLELPNLPYYKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      L47992; AAB46369.3; P31670; 1FHE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF00043; GST_C;
PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60.9%;
Similarity | 59.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               glutathione transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (APR-1999)
9 (TrEMBLrel. 12, 0
9 (TrEMBLrel. 12, 1
2 (TrEMBLrel. 21, 1
e S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25038 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     37;
                 Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 718; DB 5;
Pred. No. 9.1e-57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chung-Ang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of 26 kDa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7CB17C7B837A0B7C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        thes; Trematoda; Digenea;
Opisthorchioidea; Opisthorchiidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218
                                                                                                                   218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   University College of Medicine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               glutathione S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₹
                                                                                                                   ₿
                                                                                                                                                                                                                                   218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                   SQ CARACTAR A PART OF REAL PROPERTY OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CARACTAR A PART OF SQ CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Matc
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9NOV4;
Q9NOV4;
01-OCT-2000
                                                             InterPro; IPR003081; GST_Mu.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pec
Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last annotation update)
Class mu glutathione S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Prant, Transferase.
Transferase.
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         grams S.V., Grams R., Sobhon P., Viyanant V., "Molecular cloning of expressed antigens from Submitted (DEC-1998) to the EMBL/GenBank/DDBJ EMBL; AF112567; AAD23997.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fasciola gigantica.
Eukaryota; Metazoa; Platyhelminthes; Trematoda; Digenea;
Echinostomida; Echinostomata; Fascioloidea; Fasciolidae; Fasciola.
                                                                                                                                                                                                      antioxidant activity.";
Submitted (MAR-2000) to the
EMBL; AF249588; AAF64308.1;
HSSP; P09488; IGTU.
                                                                                                                                                                                                                                                                                                Jimenez-Asensio J.V., Garland D.; "A lens glutathione S-transferase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bos taurus (Bovine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-THAILAND;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=46835;
                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                    TISSUE-LENS;
                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSSP; P31670; 1FHE
                                                                                                                                                                                  InterPro; IPR004046; GST_Cterm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Մ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KLPEMIKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFKKRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DLPKIKAYMESEKFIKWPLNSWTASFGGGDAAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ELPKTLKMWSDFLGDRQYLTGSSVSHVDFMVYEALDCIRYLAPQCLNDFPKLKEFKSRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LGYWKIRGLQQPVRLLLEYLDEEYEEHLYGRDDREKWLGDKFNMGLDLPNLPYYIDDKCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                      218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                   AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25337 MW;
                      25635 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59.2%;
58.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  35;
                                                                                                                                                                                                                                                    EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 698; DB 5;
Pred. No. 5.8e-55;
5; Mismatches 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E9423D75C3F2EEAF CRC64;
                   3D02EA0F43C07B0A CRC64;
                                                                                                                                                                                                                                                                                                     class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    217
                                                                                                                                                                                                                                                                                                     au,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  53
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , Upatham E.S.
n Fasciola gigi
J databases.
                                                                                                                                                                                                                                                                                                     with thiol-specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pecora;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gigantica.";
```

Gaps

0

64 64

184 184 124

Bovoidea;

٠<u>.</u>

218;

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    50
                                                                         Ωy
                                                                                                                             QΥ
                                                    밁
                                                                                                    В
                                                                                                                                                          ₽
                                                                                                                                                                                  δÃ
                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q90WM9;
Q90WM9;
Q1-DEC-2001
Q1-DEC-2001
Q1-JUN-2002
                                                                                                                                                                                                                                                                                                                                De Luca A., Favaloro B., Sacchetta P., Angelucci S., Di Ilio C.; "Molecular cloning, expression and site-directed mutagenesis of a liver Mu-class glutathione S-transferase from Xenopus laevis."; Submitted (OCT-2001) to the EMBL/GenBank/DDBJ databases.

EMBL; AJ416998; CAD01094.1; -. InterPro; IPR004046; GST_Cterm.
InterPro; IPR004046; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       xenopodinae; Xenopus.
NCBI_TaxID=8355;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Amphibia; Batrachia;
Xenopodinae; Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xenopus laevis (African clawed frog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSTM1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Glutathione
                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                               Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                          y Match
Local Similarity
ches 102; Conserv.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56
                                                                                                        61
                                                                                                                                   56
                                                                                                                                                             -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LKDFISRFEGLKKISAYMKSSRFLPGPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LVCFKKRIEAIPQIDKYLKSSKYIAWPL 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PYLIDGTHKLTQSNAILRYIARKHNLCGETEEEMIRVDILENQVMDVRLAMARICYSPDF 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MPMILGYWDIRGLAHAIRLLLEYTDTNYEERQYSVGDAPDYDRSQWLNEKFKLGLDFPNL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                      PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                         PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                             MVVILGYWDIRGLAHSIRLLLEYTGTQYEEKLYVTGDAPNYDKSQWLNEKEKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EKLKPGFLKEIPEKIKLFSEFLGKRPWFAGDKLTYVDFLVYDVLDMHRIFEPKCLDAFPN 180
LQAFLTRFEALPAIDAYVKSSRFMKTPINNRMASWG
                        LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                             ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                        PYLVDGDVKLTQSNAILRYIARKHGLCGESEKEKNYVDLIENQAMDFRMGLVVIAYSPQF
                                                    ETLKGPYLEKLPIALKKFSCFLGDRSWFAGDKITYVDFVMYDVLDQHRILDPTCLQNFKN
                                                                                                                                                                                                                                                                                                        PF00043; GST_C; 1.
PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                   219 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (TrEMBLrel. 19, Created)
(TrEMBLrel. 19, Last, sequence update)
(TrEMBLrel. 21, Last annotation updat
S-transferase (EC 2.5.1.18).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                  N
                                                                                                                                                                                                                                                                   219 X
25359 MW;
                                                                                                                                                                                                                           42.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Anura; Mesobatrachia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               43.5%; Score 512.5;
47.6%; Pred. No. 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   35,
                                                                                                                                                                                                                          Score 505.5;
Pred. No. 1.2
                                                                                                                                                                                                                                                                   XLGSTM1.
; 5F7FF8AEDDA82DFD CRC64;
                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      219
                                                                                                                                                                                                                        o; DB 13;
l.2e-37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .8e-38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A
                          211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pipoidea;
                                                                                                                                                                                                                 76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ç
                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           55
                                                                                                        120
                                                                                                                                                             60
                                                                                                                                                                                       55
```

```
RESULT 7
Q8R516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SQUE DE RELEGIOR DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DE LA COMPANIA DEL COMPANIA DEL COMPANIA DE LA COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMPANIA DEL COMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-MAY-1999
01-MAY-1999
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q8R516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           He H., Chen A.C., Davey R.B., Ivie G.W., George J.E.;
"Characterization and molecular cloning of a glutathione S-transferase gene from the tick, Boophilus microplus (Acari: Ixodidae).";
Insect Blochem. Mol. Blol. 29:737-743(1999).
EMBL; AF077609; AAD15991.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAY-1999 (TrEMBLrel. 10
01-JUN-2002 (TrEMBLrel. 21
Glutathione S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Boophilus microplus (Cattle tick).
Eukaryota; Metazoa; Arthropoda; Chelicerata; Arachnida;
Parasitiformes; Ixodida; Ixodidae; Boophilus.
                                                                                                                                                                                                                                                                                                                       01-JUN-2002 (TrEMBLrel. 21, Created)
01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Glutathione transferase GSTM7-7 (EC 2.5.1.18).
Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                   Guo J., Zimniak L., Zimniak "Cloning and expression of a transferase isoenzyme.";
Submitted (JAN-2002) to the
                                                                                                                                               Guo J.,
                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR003081; InterPro; IPR004045;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR004046; GST_Cterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-99381232;
Transferase.
SEQUENCE 218
                                                 EMBL;
                                                                                                                                                                            STRAIN-A/J;
                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                   NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LKAFVDRIEALPHVAAYLKSDKCIKWPLNGDMASFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LYCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ETLKYDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PYYIDGDVKLTQSMAILRYLARKHGLEGKTEAEKQRVDVSEQQFADFRMNWVRLCYNPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MAPVLGYWDIRGLAQPIRLLLAHVDAKVDDKRYTCGPPPDFDRSSWLNEKTKLGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 al Similarity
102; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P20136; 1GSU
                                                 AF464943; AAL76248.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                223 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=10451925;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25604 MW; F276ACE2D8259174 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GST_mu.
GST_Nterm.
  25519 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10,
10,
21,
                                                                                                                          Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 502.5;
Pred. No. 2.3e
29; Mismatches
                                                                                                                          P., Orchard J.L., Singh a novel mu class murine o
                                                                           EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
  81F15DBB46118102 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .3e-37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; 08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ن.
                                                                           databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                          h S.V.;
glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Acari;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
```

1.

Query

500

ŗ

DB

Length

218;

```
RESIDENT PRESIDENT RESIDENT RE
                                          δÃ
    밁
                                                                                         뫄
                                                                                                                             δÃ
                                                                                                                                                                                 밁
                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                                                                                                                               Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity Matches 97; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAY-2000 (
01-MAY-2000 (
01-JUN-2002 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR004046 GST_Cterm.
InterPro; IPR003081; GST_Mu.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-20330602; PubMed=10869451;
Wang C., Bammler T.K., Guo Y., Kelly E.J., Eaton D.L.;
"Mu-class GSTs are responsible for aflatoxin B(1)-8, 9-epoxide-
conjugating activity in the nonhuman primate macaca fascicularis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAY-2000 (TrEMBLrel. 13,
01-MAY-2000 (TrEMBLrel. 13,
01-JUN-2002 (TrEMBLrel. 21,
Glutathione S-transferase mu
                                                                                                                                                                                                                                                                                                                                                                                                                                        Transferase.
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AF200709;
HSSP; P09488; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
Cercopithecinae; Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q9TSM5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            conjugating activity
liver.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE-LIVER;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID-9541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9TSM5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR01267; GSTRNSFRASEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Toxicol
    181
                                               176
                                                                                         121
                                                                                                                                      116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                   61
                                                                                                                                                                                                                           56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               56
                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                            Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LKDEVAREEVLKRISAYMKTSRELRTPLYTKVATWG
LKDFISHFEGLEKISAYMKSSRFLPKPLYTRVAVWG
                                                                                                                                                                                                                                                              MPMTLGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNL
                                                                                                                                                                                                                                                                                                           MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK
                                          LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                  EKLKPEYLEGLPTMMQHFSQFLGKRPWFVGDKITFVDFLAYDVLDLHRIFEPKCLDAFPN
                                                                                                                               ETIKVDFLSKLPEMLKMFEDRICHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                            PYLIDGTHKITOSNAILRY IARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDF
                                                                                                                                                                                                   PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PYLIDGSHKITQSNAILRYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MPMTLGYWDIRGLAHAIRLLLEYTGSSYEEKRYTMGDAPDYDRSQWLSEKFKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                               94,
                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sci.
                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1GTU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56:26-36(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                       25577 MW;
                                                                                                                                                                                                                                                                                                                                                                                40.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mu-class subunit M1 (EC
                                                                                                                                                                                                                                                                                                                                                             36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Last sequence update)
Last annotation update
                                                                                                                                                                                                                                                                                                                                                        Score 477.5;
Pred. No. 3.9e
36; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 3.4e-37;
9; Mismatches 75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    EE5B4D80F60C95EB CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218
                                                                                                                                                                                                                                                                                                                                                                                    . 9e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216
                                            211
216
                                                                                                                                                                                                                                                                                                                                                                                                       DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                             81;
                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.5.1.18).
                                                                                                                                                                                                                                                                                                                                                                                                       218;
                                                                                                                                                                                                                                                                                                                                                        <u>ت</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                         120
                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               55
                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۳.
```

```
RESULT 10
Q9TSM4
          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAPEGULT CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 97
                                                                                                                                                                                                                                                                                                                                      Q9TSM4;
Q9TSM4;
01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUN-2001
01-JUN-2001
01-JUN-2001
01-JUN-2002
WEDLINE=20330602; PubMed=10869451; Wang C., Bammler T.K., Guo Y., Kelly E.J., Ea "Mu-class GSTs are responsible for aflatoxin conjugating activity in the nonhuman primate
                                                                                                                                                                                                                                                                                                                01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Glutathione S-transferase mu-class subunit M2 (EC 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUN-2001 (TrEMBLrel. 17, Created of JUN-2001 (TrEMBLrel. 17, Last so of JUN-2002 (TrEMBLrel. 21, Last as controlled transferase M2. Glutathione transferase M2. Macaca fuscata (Japanese macaque).
                                                                                                                                                                     Cercopithecinae;
NCBI_TaxID=9541;
                                                                                                                                                                                                                   Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey)
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleost
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS; PR01267; GSTRNSFRASEM Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Cercopithe Cercopithecinae; Macaca.
                                                                                                    TISSUE-LIVER
                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00043; GST_C; Pfam; PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9BEB0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR004046; GST_Cterm.
InterPro; IPR003081; GST_mu.
InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NLKDFISRFEGLEKISAYMKSSRFLPRPVFTKMAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MSPI-LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KLVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LPYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKD 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MMPMTLGYWNIRGLAHSIRLLLEYTGSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEKLKPEYLEGLPEMLKLYSQFLGKQPWFLGDKITFVDFIAYDVLERNQVFEPSCLDAFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFP 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LPYLIDGTHKITQSNAILRY IARKHNLCGETEKEKIREDILENQLMDNRMQLARLCYDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 Similarity
97; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             221 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N.A.
                                                                                                                                                                                                 Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26068 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    40.3%; Score 475; DB 6; 44.7%; Pred. No. 6.7e-35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created)
                                                                                                                                                                                                                Craniata; Vertebrata;
Catarrhini; Cercopith
                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01F22BAC6DA57FE9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                        218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       221
                                                                                                                                                                                                                                                                                                                                                                                                                                      ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ያ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cercopithecidae,
                                                    Eaton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            211
       B(1)-8, macaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CRC64;
                                                    D.L.
                                                                                                                                                                                                                                                                                                                  2.5.1.18).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
  , 9-epoxide-
fascicularis
                                                                                                                                                                                                                                            Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  221;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
```

```
Q RESULT OR REPORT OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SQ SQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멅
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                 Š
                        Š
                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 96
                                                                                                                                                                Query Match
Best Local S
Matches 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q27653;
Q27653;
Q1-NOV-1996
Q1-NOV-1996
Q1-JUN-2002
G1utathione
                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

MEDLINE-96379220; PubMed-8784771;

Llebau E., Muller V., Lucius R., Walter R.D., Henkle-Duhrsen Llebau E., Muller V., Lucius R., Walter R.D., Henkle-Duhrsen "Molecular cloning, expression and characterization of a rect "Molecular cloning, expression and characterization of a rect glutathione S-transferase from Echinococcus multilocularis.", glutathione S-transferase from Echinococcus multilocularis.", pinchem. Parasitol. 77:49-56(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM.
Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                liver.";
Toxicol.
                                                                                                                                                                                                                                                                                                     InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Echinococcus multilocularis.
Eukaryota; Metazoa; Platyhelminthes; Cestoda;
Cyclophyllidea; Taeniidae; Echinococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AF200710; AAI
HSSP; P28161; 1HNA
                                                                                                                                                                                                                                                             Transferase.
SEQUENCE 219
                                                                                                                                                                                                                                                                                                                                                                                                  Mol. Biochem. Parasitol. 
EMBL; x85736; CAA59739.1;
HSSP; P20136; IGSU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local 96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CBI_TaxID-6211;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56
                           56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LKDFISRFEGLEKISAYMKSSRFLPRPVFTKMAVWG 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PYLIDGTHKITQSNAILRYIARKHNLCGETEKEKIREDILENQLMDNRMQLARLCYDPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MPMTLGYWNIRGLAHSIRLLLEYTGSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                    LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EKLKPEYLEGLPEMLKLYSQFLGKQPWFLGDKITFVDFIAYDVLERNQVFEPSCLDAFPN 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IPR004046; GST_Cterm.
IPR003081; GST_mu.
IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 (TrEMBLrel. 01, 6 (TrEMBLrel. 01, 2) (TrEMBLrel. 21, 2) e transferase (EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56:26-36(2000).
0; AAF08540.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AA; 25708 MW;
                                                                                                                                                                                                                                                                A
:
                                                                                                                                                                                                                                                             25470 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40.2%; Score 474.5;
44.4%; Pred. No. 7.36
Live 34; Mismatches
                                                                                                                                                                40.2%; Score 474.5;
42.4%; Pred. No. 7.4;
tive 40; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
Last sequence update)
Last annotation update)
2.5.1.18).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                             74FA820AC56F745B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F2E509C3949F9051 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             219
                                                                                                                                                                                        7.4e-35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.3e-35;
hes 81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DВ
                                                                                                                                                                                                            DB 5;
                                                                                                                                                                  ;08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eucestoda;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                            Length
                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ű
                                                                                                                                                                  ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۳.
                                                                                                                                                                  ۲
```

```
RESULT 13
Q91Y83
ID Q91Y8
AC Q91Y8
DT 01-DEDT 01-DEDT 01-DEDT 01-DEDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A LO CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                  δĀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
Fernandez Mancebo V., C
Fernandez Granja C.;
*EgGST: a glutathione S
granulosus.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             016058;
01-JAN-1998
01-JAN-1998
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Echinococcus granulosus.
Eukaryota; Metazoa; Platyhelminthes; Cestoda;
Cyclophyllidea; Taeniidae; Echinococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. Fernandez V., Zaha A., Submitted (MAY-1997) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Glutathione GSTMU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         016058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transferase.
Transferase.
219 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HSSP; P20136; 1GSU.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=6210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                         116
                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LKAYLSRFENLPALRDYMASKEFKTCPCNGASAKWRG 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFGG
                                                                                                                                                                                                  LKAYLSRFENLPALRDYMASKEFKTRPCNGASAKWRG
                                                                                                                                                                                                                                                                                                                                                                                                           PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYE----RDEGDKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PYYIDGDFKLTQSGAILEYIADRHGMIPDCKKRRAVLHMLQCEVVDLRMAFTRTCYSPDF
                                                                                                                                                                                                                                              LVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFGG
                                                                                                                                                                                                                                                                                           EKLKPGLFETLAQKLPNFEAYLGEKEWLTGDKINYPDFSLCELLNQLMKFEPTCLEKYPR
                                                                                                                                                                                                                                                                                                                                         ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK
                                                                                                                                                                                                                                                                                                                                                                                 PYYIDGDFKLTQSGAILEYIADRHGMIPDCKKRRAVLHMLQCEVVDLRMAFTRTCYSPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MAPTLAYWDIRGLAEQSRLLLKYLEVEYDDKRYKIGSTPTFDRSAWLSEKFSLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AF005928; AAB66318.1;
AF101269; AAD16438.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8 (TrEMBLrel. 05,
2 (TrEMBLrel. 21,
e S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25553 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S-transfersase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chalar C., Martinez
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fernandez C.;
o the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05,
21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 473.5; DB Pred. No. 9e-35; O; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8883E70AD075D154 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  c.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   212
                                                                                                                                                                                                    217
                                                                                                                                                                                                                                                212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zaha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eucestoda;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Echinococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                              115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55
```

Q91Y83; Q91Y83; Q1-DEC-2001 Q1-DEC-2001 Q1-JUN-2002

(TrEMBLrel. (TrEMBLrel. (TrEMBLrel.

19, 19, 21,

Created)
Last sequence update)
Last annotation updat

PRELIMINARY;

218

₿

1,

```
RESULT 14
Q9WU21
  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arch. Biochem. Biophys. 354:188-1
EMBL; AB000488; BAB47185.1; -.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF00798; GST_N; 1.
STRAIN-SPRAGUE-DAWLEY;
Qian B., Tu C.P.;
The Rat Glutathione S-Transferase Yb4
Submitted (NOV-1998) to the EMBL/GenBar
EMBL; AF106661; AAD22630.1; -
HSSP; P04905; 2GST.
                                                                                                     STRAIN-SPRAGUE-DAWLEY;
MEDLINE-88288790; PubMed-3403534;
Lai H.C., Qian B., Grove G., Tu C.P.;
"Gene expression of rat glutathione S-transferas conversion in the evolution of the Yb multigene J., Biol. Chem. 263:11389-11395(1988).
                                                                                                                                                                                                                              Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                 01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Glutathione S-transferase Yb4 (EC 2.5.1.18).
                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=HARTLEY; TISSUE=LIVER;

MEDLINE=98297271; PubMed=9633615;

Hiratsuka A., Ogura K., Fujioka H., Sakamoto Y., Okuda H., Wada K.,

Tanaka T., Nishiyama T., Watabe T.;

"Guinea pig liver Mu-class glutathione S-transferase M1-2 cross-reacts
with antibodies to both rat Mu- and theta-class glutathione S-
                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                    NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                           Q9WU21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                Q9WU21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transferases.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Glutathione S-transferase subunit gyc. Cavia porcellus (Guinea pig).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID-10141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         176
                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _
                                                                                                                                                                                                                                                                                                                                                                                                                                                      LVCFKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EKKKPEPLEGLPDKMKLFSQFLGEQPWFAGNKTTFVDFLAYDVLDQHRIFEPKCLEAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PYLIDGTHKLTQSNAILRY IARKHNLCGETEEERIRMDILENQVMDFRIQLGMVCYSPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MPMTLGYWDIRGLTHAIRLLLEYTDTSYEEKRYTMGDAPDFDTSQWLNEKFKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                             LKEFISRFEGLKKISAYMKSSRFLPGPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Metazoa;
                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25695 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 354:188-196(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                33;
                        sierase Yb4 genomic clone
EMBL/GenBank/DDBJ databas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 471.5;
Pred. No. 1.4
                                                                                                                                                                                                                               Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D2B9E31F9FEFA1E8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                              208
                                                                                                                                                                                                                                                                                                                                                                                                                                                        203
                                                                                                                   S-transferases. Evi
fb multigene family.
                                                                                                                                                                                                                                                                                                                                                          218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .4e-34
                                                                                                                                                                                                                                                                                                                                                        3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77;
                        databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                 Evidence
                                   sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                 for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۲.
```

```
RESULT
Q9DD25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SQ DR DR
                                                                                                                                                                                                RA Kawai J., Shihada K., Yoshino M., Itoh M., Ishii Y.,
RA Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA Juyos P., Marchionni L., Mashima J., Mazazarelli J., Mombaerts P.,
RA Mordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Mynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA Havashizaki Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 90
HSSP; FZGLV.,
MGD; MGI:1932134; Rpgripl.
MGD; MGI:1932134; Rpgripl.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR003081; GST_mu.
InterPro; IPR004045; GST_Nterm.
InterPro; IPR004045; GST_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          O9DD25 PRELIMINARY;
O9DD25:
01-JUN-2001 (TIEMBLICAL II
01-JUN-2001 (TIEMBLICAL II
01-JUN-2002 (TIEMBLICAL II
                                                                                                                      "Functional annotation of a full-length Nature 409:685-690(2001).
EMBL; AK002213; BAB21939.1; -.
HSSP; P28161; 2GTU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
InterPro;
                                                                                                                                                                                            Hayashizaki Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-C57BL/6J;
MEDLINE-21085660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0610005A07Rik protein.
RPGRIP1 OR 0610005A07RIK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LKDFLARFEGLKKISAYMKSSSFLPRPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LVCFKKRIEAIPQIDKYLKSSKYIAWPL 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EKQKPEFLKSIPEKMKIYSEFLGKRPWFAGDKVTYVDFLAYDILDQYRWFEPECLDAFPN 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PYLIDGSHKVTQSNAILRYLGRKHNLCGETEEERIRVDTLENQVMDTRIHLMIVCCSPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MAMILGYWNVRGLTHPIRLLLEYTDSNYEEKRYVMGDAPNFDRSQWLSEKFNLGLDIPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pro; IPR004046; GST_Cterm.
Pro; IPR004045; GST_Nterm.
PF00043; GST_C; 1.
PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE-KIDNEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PubMed=11217851;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25643 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    43.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 39.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17,
17,
21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
Last sequence up
Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 464.5;
Pred. No. 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4E9C22F9AEEAC6C4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    218
                                                                                                                                                                        mouse cDNA collection. ";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8e-34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5.
                                                                                                                                                                                                                                                                           Р.,
Н.,
                                                                                                                                                                                                                                           K. -F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             55
```

```
밁
                                                                                           Qy
                                                                                                                В
                                                                                                                                   Š
                                                                                                                                                       В
                                                      Ş
                                                                                                                                                                       Q
Search completed: May 20, 2003, 11:37:46 Job time: 17.0413 secs
                                       밁
                                                                                                                                                                                            Query Match 38.7%; Score 456.5; DB 11; Length 218; Best Local Similarity 41.2%; Pred. No. 3e-33; Matches 89; Conservative 41; Mismatches 81; Indels 5;
                                                                                                                                                                                                                                  Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM.
SEQUENCE 218 AA; 25679 MW; 13471C2E08ABC115 CRC64;
                                    5;
                                                                                                                                                                                              Gaps
                                                                                                                                                                                              ŗ
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. score grea and is der
                                                                                                                                                                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                        d. No. is the number of results predicted by chance to have a
re greater than or equal to the score of the result being printed,
is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq
                                                                                                                                                                                                                                                                1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                        Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-081-408-5
1164
1 MSPILGYWKIKGLYQPTRLL.....IAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A_Geneseq_101002:*
1: /SIDS2/acadata
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 908470 segs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             May 20, 2003, 07:58:08; Search time 18.4058 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                        BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gapext 0.5
                                                                                                                                                                                                                                                                                                                        Ħ
                                                                AAW73909
AAB31612
AAW74114
                                                                                                                                              AAW84205
ABB09809
AAW02122
AAW02123
AAW72793
        AAW74120
AAW74103
                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (without alignments) 1578.232 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               908470
Glutathione-s-tran
Glutathione-s-tran
GST protein sequen
Amino acid sequenc
GST/GI transport r
GST/GI transport r
                                                                                                                                                                                                                                                                                                                  Description
                                                                                                                                                                                                         Glutathione-s-tran
                                                                                                                                                                                                                                   Glutathione-S-tran
                                                                                                                                                                                                                                                          Protein comprising
```

ALIGNMENTS

25-MAR-1999 (first entry)

Protein comprising a purification tag.

AAW84205;

AAW84205 standard; Protein; 218 AA.

```
RESULT 1
AAW84205
ID AAW8
XX AW8
AC AAW8
DT 25-M
DT 25-M
CXX Prot
KW Prot
XX Prot
XX Prot
XX Prot
XX W Onid
XX W O98
XX W 03-J
XX W (HAI
PA (HAI
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
PA (WUI)
                                                                  (HALL/) HALL F L.
(HANB/) HAN B.
(NIMN/) NIMNI M E.
                                                                                                                                                                                                                                  Proteinase site; bone morphogenetic fusion protein; bone binding site; bone morphogenetic protein; transforming growth factor beta; active fragment; wound healing; bone growth; purification tag.
 WPI; 1999-059875/05.
                                                                                                                                         02-JUN-1998;
                        Hall FL,
                                                                                                                   03-JUN-1997;
                                                                                                                                                                 10-DEC-1998
                                                                                                                                                                                        WO9855137-A1
                                                                                                                                                                                                                Unidentified.
                                              (MULL/)
                                              HAN B.
NIMNI M |
SHORS E O
                        Han B,
                                                                                                                  97US-0868452
                                                                                                                                          98WO-US11189
                                                           O E
                         Nimni ME,
                         Shors
                        EC,
                         Ę
```

```
RESULT 2
ABB09809
                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or all of the following elements: a purification tag, a proteinase site, an ECM/bone binding site, a second proteinase site, and a bone morphogenetic protein active fragment. The fusion proteins of the invention also includes proteins that have transforming growth factor beta active fragments instead of bone morphogenetic protein active fragments. The bone morphogenetic fusion proteins can be used for
Topical compositions, ultraviolet radiation,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                           Schistosoma japonicum.
                                                                                                                                                                                                                                             Glutathione-S-transferase; GST; enzyme; metallothionein; MT-IIA;
                                                                                                                                                                                                                                                                       Glutathione-S-transferase
                                                                                                                                                                                                                                                                                                                                              ABB09809 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure; Page 39-40; 64pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New bone morphogenetic fusion proteins - comprising a purification tag and a bone morphogenetic active fragment, used for enhancing
                                     WPI; 2002-332437/37.
                                                            Armengol
                                                                                                                                    31-JUL-2001;
                                                                                                                                                            08-MAR-2002
                                                                                                                                                                                                                                                                                               22-JUL-2002
                                                                                                                                                                                                                                                                                                                         АВВ09809;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              wound
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        at was used in the creation of the bone morphogenetic fusion proteins the invention. The bone morphogenetic fusion protein may contain some all of the following elements: a nurrification.
                                                                                                                                                                                                                                                                                                                                                                                                                        KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                          KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                          DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            healing or bone growth
                                                                                   PROVITAL SA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAV99373
                                                           SR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               wound healing or bone growth.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98.7%;
nilarity 98.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         218 AA;
                                                                                                                                                                                                                                   contact;
                                                                                                                                    2001FR-0010239
                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                           2000ES-0000217.
                                                           Benaigues
                                                                                                                                                                                                                                    Ş
           used to
 contain
                                                                                                                                                                                                                                   light.
                                                                                                                                                                                                                                                                       (GST)
                                                                                                                                                                                                                                                                                                                                                218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1149; DB 20;
Pred. No. 6.6e-113;
D; Mismatches 3;
           protect
protect against heavy metals retallothionein proteins -
                                                                                                                                                                                                                                                                   of Schistosoma japonicum
                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
KESULT 3
AAW02122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A CONTRACT OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                            29-DEC-1995;
10-FEB-1995;
07-MAR-1995;
30-JUN-1995;
11-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Grb2 SH2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present sequence represents the glutathione-S-transferase (GST) protein of Schistosoma japonicum. A human metallothionein class IIA (MT-IIA) was expressed fused to the present GST protein, for purification purposes. The MT-IIA protein was used to produce topical pharmaceutical and cosmetic compositions, in the form of gels. creams, ointments, soaps and body lotions. In the compositions, the metallothionein proteins have a prosthetic group attached to a zinc ion. The topical compositions can be used for protection of human or animal external tissue against the effects of heavy metal contact and
  Use of selective src
treating bone resorpt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bone resorption disease; osteoporosis; src SH2 domain antagonist; src homology 2 domain; glutathione-s-transferase; fyn SH2; Grb2 SH2; SH-PTP2 SH2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Glutathione-s-transferase epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example; Page 28-29; 33pp; French.
                                                                                 WPI; 1996-372674/38
                                                                                                                                                                                                                                                                                                                                                                                                             07-FEB-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EP727211-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW02122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAW02122 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UV light.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21-AUG-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Not specified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-OCT-1996
                                                                                                                                                                                         (SMIK ) SMITHKLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLÈGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
ive src SH2 resorption
                                                                                                                                                                                                                                            95US-0400220.
95US-0497357.
95US-0541080.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                           95US-0580868
95US-0386381
                                                                                                                                                                                                                                                                                                                                                                                                             96EP-0200270
                                                                                                                                                                                         BEECHAM CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98.7%;
98.6%;
     domain ligand -
disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1149; DB 23;
Pred. No. 6.6e-113;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ⋛
                            ç
                            prepare medicament
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                              for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gels,
```

```
RESULT 4
AAWO2123
AD AAWO
XX AAWO
AC AAWO
AC AAWO
AC AWW
BONE
KW BONE
KW STC
XX NOT
XX NOT
PN EP72
YX 07-F
XX 07-F
XX 07-F
PR 10-F
PR 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        XXXSSSSSSSSXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 98.6 Matches 215; Conservative
                                                                                                                                                                                                                                                                        29-DEC-1995;
10-FEB-1995;
07-MAR-1995;
30-JUN-1995;
11-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A glutathione-s-transferase epitope (AAW02122) was used to construct fusion proteins with human S12 domains from fyn (see also AAW02124), Grb2 (AAW02127) and SH-PTP2 (AAW02125); a similar epitope (AAW02123) vused to construct a fusion protein with human p85 SH2 domain (see also AAW02126). These fusion proteins, and tagged proteins including other SH2 domains (see also AAW02119-21), can be used in binding assays to determine the specificity of cpds. to inhibit SH2 domains; cpds. that selectively inhibit the human src SH2 domain are useful
                                                Use of selective src SH2 treating bone resorption
                                                                                                                                                                           Dunnington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                             07-FEB-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bone resorption disease; osteoporosis; src SH2 don src homology 2 domain; glutathione-s-transferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Glutathione-s-transferase epitope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example 11; Page 31-32;
  Example 11; Page 31-32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-AUG-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Not specified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW02123 standard; Protein; 225
                                                                                                                                                                                                                          (SMIK ) SMITHKLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    treating bone resorption diseases such as osteoporosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                        1996-372674/38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        224 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                        95US-0580868.
95US-0386381.
95US-0400220.
95US-0497357.
95US-0541080.
                                                                                                                                                                                                                                                                                                                                                                                                                             96EP-0200270.
                                                                                                                                                                                                                            BEECHAM CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47pp;
47pp; English
                                                domain ligand -
disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1149; DI
Pred. No. 6.9e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     src SH2 domain
ransferase; p85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; DB 17;
5.9e-113;
hes 3;
                                                                          ៥
                                                                       prepare medicament
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        antagonist;
SH2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
ARESULT 5
AAR7/27
AAR7/27
XX
AAR7/27
XX
AAR7/27
XX
AC
AAR7
XX
AC
AAR7
XX
AC
AAR7
XX
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
AAR7
AC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *88888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                               13-JUL-1994;
30-AUG-1993;
17-NOV-1993;
03-JAN-1994;
25-FEB-1994;
15-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A glutathione-s-transferase epitope (AAW02122) was used to construct fusion proteins with human SH2 domains from fyn (see also AAW02124), Grb2 (AAW02127) and SH-PTP2 (AAW02125); a similar epitope (AAW02123) wased to construct a fusion protein with human p85 SH2 domain (see also AAW02126). These fusion proteins, and tagged proteins including other SH2 domains (see also AAW02119-21), can be used in binding assays to determine the specificity of cods. to inhibit SH2 domains; cpds. that selectively inhibit the human src SH2 domain are useful in treating bone resorption diseases such as osteoporosis.
Nucleic acid synthesis in
                                                                       WPI; 1995-131101/17.
N-PSDB; AAQ86774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SDI-1; senescent cell-derived inhibitor; DNA synthesis;
senescence; cell proliferation; cancer; therapeutic; vulnerary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glutathione-s-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                       Smith JR;
                                                                                                                                                                                                       (BAYU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-AUG-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-OCT-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR72793 standard; Protein; 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                       ) BAYLOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein; glutathione-s-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           225 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      japonicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                    94US-0274535.

93US-0113372.

93US-0153564.

94US-0160814.

94US-0203535.

94US-0229420.

94US-0268439.
                                                                                                                                                                                                       COLLEGE MEDICINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94WO-US09700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1149; DB 17; Pred. No. 6.9e-113; 0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           225;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Was
```

encoding a protein or polypeptide that a recipient cell - useful to inhibit c

inhibits

DNA

```
RESULT 6
AAW73909
ID AAW7
XX AAW7
XX AAW7
XX AAW7
XX AAW7
XX Cell
KW Prot
XX Schi
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP11
XX JP10
XX JP11
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX JP10
XX J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
This sequence is the Glutathione-S-transferase (GST) protein, was expressed in the microbe of the invention. The microbe has surface nonexpressive functional protein on its surface, fused support protein derived from a cell-permeating protein. The mic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The senescent cell-derived inhibitor-1 (SDI-1) inhibits DNA synthesis in a recipient cell and is capable of associating with a cyclin (esp. cyclin D1) or cyclin-dependent kinase (esp. CDK2). Production of a fusion protein of SDI-1 and glutathione-s-transferase (AAR72793) facilitated the preparation and isolation of recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            proliferation in tumour cells, treat wound or burn tissue,
an antiviral or antiparasitic agent
                                                                                                                         Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cell surface nonexpaessive functional protein; cell-permeating protein; protein screening; protein production; GST; glutathione-S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW73909 standard;
                                                                                                                                                                                              Microbe having a nonexpressive for screening and large-scale p
                                                                                                                                                                                                                                                                          N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                            23-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JP11009278-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Schistosoma japonicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAW73909;
                                                                                                                                                                                                                                                                                                                                              (SUME)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein sequence
                                                                                                                                                                                                                                                                       1999-145895/13.
DB; AAX01312.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GDVKLTOSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                 SUMITOMO ELECTRIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            232
                                                                                                                         Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ä,
                                                                                                                                                                                                                                                                                                                                                                                              97JP-0165788
                                                                                                                                                                                                                                                                                                                                                                                                                                               97JP-0165788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              130;
                                                                                                                         8-9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98.7%;
                                                                                                                       13pp; Japanese
                                                                                                                                                                                                                                                                                                                                                 IND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 1149;
Pred. No. 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              English.
                                                                                                                                                                                              preparation of a select
                                                                                                                                                                                                                                                                                                                                                 ၀
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .2e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                selected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                       its surface
                                                                                                                                                                                                function
  fused to a
The microbe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                         which
                           to.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                  cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
       can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
AAB31612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ನಿನಿನಿಷ್ಟ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
The present sequence represents a glutathion-S-transferase (GST), whice was used linked to HPV16 E7 protein, for purification purposes. The E7 protein was used to construct a fusion protein with Mycobacterium bovi heat shock proteins (HBp). The fusion proteins are used in the method the invention. The specification describes a method of determining whether a compound stimulates a Thi-like response. Thi cells are a sub of CD4+ T lymphocyte cells. The method comprises contacting naive lymphocytes in vitro with a fusion protein comprising at least a fragm of Hsp, and then detecting the THI-like response exhibited by the cell sample. The proteins which may be used in the method of the invention
                                                                                                                                                                                                                                                  Siegel M,
                                                                                                                                                                                                                                                                                                                                                                                                                                 Heat shock protein; Hsp; Thl 1 lymphocyte; Hsp65; Hsp40; Hsp1 glutathion-S-transferase; GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB31612 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                be used for screening for biological activity of a cell surface nonexpressive protein. It can also be used for preparation of a functional protein in a large amounts.
                                                                                                                                                                                    Screening
                                                                                                                                                                                                             N-PSDB;
                                                                                                                                                                                                                                                                                                    08-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                        18-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                          Unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-APR-2001
                                                                                                                                            Example 9; Fig
                                                                                                                                                                                                                                                                                                                             10-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                WO200104344-A2
                                                                                                                                                                                                                                                                           (STRE-)
                                                                                                                                                                      Lymphocyte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                         2001-138361/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     al Similarity
215; Conser
                                                                                                                                                                                                             AAF25015
                                                                                                                                                                                                                                                                            STRESSGEN
                                                                                                                                                                                  for compounds that stimulate
                                                                                                                                                                                                                                                  Chu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                       cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence of glutathion-S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                               2000WO-US18828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ä
                                                                                                                                                                                                                                                  NR,
                                                                                                                                               8;
                                                                                                                                                                                                                                                                                                      9908-0143757
                                                                                                                                            88pp;
                                                                                                                                                                                                                                                                            BIOTECHNOLOGIES
                                                                                                                                                                                                                                                  Mizzen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98.7%;
                                                                                                                                               English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Th1 response;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Hsp10;
                                                                                                                                                                                                                                                  Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1149; E
Pred. No. 7.6e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                              Hsp60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Th1 cell; CD4+ T lymphocyte
                                                                                                                                                                                    Th1-like
                                                                                                                                                                                                                                                                                                                                                                                                                                              Hsp71; microbial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 20;
.6e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              218
                                                                                                                                                                                    responses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GST).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                              pathogen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240;
                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                selected
                                                                                                       which
he E7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

fragment a subset

bovis of

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSSSS S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Sim
Matches 215;
         This sequence represents a fusion protein between glutathione-S-transferase and a gastro-intestinal transport protein binding peptide. The invention relates to purified proteins (I) that specifically to at least one of the gastro-intestinal (GI) tract
                                                                                          New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                                                                                                                                                                                                                                                                   intestinal peptide-associated transporter; hypertension; diabetes;
osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris;
therapeutic agent delivery; therapy; fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hsp65, Hsp40, Hsp10, Hsp60, and Hsp71. The method may be used to identify compounds that stimulate Th1-like responses in response to microbial
                                                                                                                                                                                                                                                                                                                                                                                                      Gastro-intestinal transport receptor; binding protein; hSI; HPT1;
D2H; hPEPT1; human; GI tract receptor; sucrose isomaltase complex;
                                                                                                                                                                                                                                                                                                                                                                                                                                         GST/GI transport receptor binding protein fusion sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAW74114 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pathogens
                                                                                                                                                        WPI; 1999-009568/01.
                                                                                                                                                                               Omahony
                                                                                                                                                                                                                                                                                                                         WO9851325-A2
                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                (CYTO-) CYTOGEN CORP. (ELAN-) ELAN CORP PLC
                                                                                                                                                                                                                                                                            15-MAY-1998;
                                                                                                                                                                                                                                                                                                  19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                              ρ̈́Ϋ́
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                  CORP PLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                              Belinka BA, Patterson CA,
                                                                      217;
                                                                                                                                                                                                                                                   97US-0046595.
                                                                                                                                                                                                                                                                            98WO-US10088.
                                                                     294pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98.7%;
                                                                                                                                                                             Cagney GM,
, Singleton
                                                                      English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1149; DB 22; Pred. No. 7.8e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                              Carter JM,
J;
transporter
                                                                                                                                                                                         Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          245;
 (HPT1)
                                                                                                                                                                                         IJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                       that
                                                                                                       or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                       bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
ARW74179

AAW74179

AAW741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
Matches 215; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                active transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, cancer, migraine, or angina pectoris. Specifically they are used to deliver insulin or leuprolide, but many other suitable therapeutic agents are disclosed, including genes or inhibitory nucleic acid, imaging agents and antigens. (I) may also provide targeting to the GI tract. Other uses of (I) are: (i) to determine the level of specified receptors in a sample (in a binding assay); and (ii) to screen for molecules that bind (I). Immunogenic analogues or derivatives of (I) are used to raise antibodies and in immunoassays. The antibodies are used to locate, detect and measure (I), e.g. for imaging, monitoring treatment, tissue analysis etc., also for peptide purification and immobilisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris;
                                                        WPI; 1999-009568/01
                                                                                                           Alvarez VL,
Omahony DJ,
                                                                                                                                                                                                                                                                                                                                                                                                      19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  W09851325-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              therapeutic agent delivery;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GST/GI transport receptor binding protein fusion sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW74120 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hPEPT1, D2H and human sucrose-isomaltase complex (hSI).
                                                                                                                                                                                                                                                                                        15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                 15-MAY-1998;
                                                                                                                                                                                                 (CYTO-) CYTOGEN CORP
(ELAN-) ELAN CORP PLO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                    ELAN CORP PLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      247 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                              Belinka BA,
Patterson (
                                                                                                                                                                                                                                                                                        97US-0046595
                                                                                                                                                                                                                                                                                                                                                 98WO-US10088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98.7%;
                                                                                                                 ÇĄ,
                                                                                                              Cagney GM,
, Singleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              therapy; fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1149; DB 20;
Pred. No. 7.9e-113;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ያ
                                                                                                                 Carter
J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        218
                                                                                                                                            Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length

    provide

                                                                                                                                               IJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

proteins that bind specifically to receptors

'n

the

```
RESULT 10
AAW74103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Therri, D2H and human sucrose-isomaltase complex (nsl). (1) provided hereign and animal GI tissue active transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, and cancer, migraine, or angina pectoris. Specifically they are used to common the common transport of the common transport of the care disclosed, including genes or inhibitory nucleic acid, imaging agents and antigens. (1) may also provide targeting to the GI tract. Other uses of (I) are: (1) to determine the level of specified receptors in a sample CC in a binding assay; and (1) to screen for molecules that bind (I).

CC Immunogenic analogues or derivatives of (I) are used to raise antibodies and in immunoassays. The antibodies are used to locate, detect and common the common traction of the common tissue analysis etc., also for peptide purification and immobilisation.
ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            glutathione-S-transferase and a gastro-intestinal transport protein binding peptide. The invention relates to purified proteins (I) that specifically to at least one of the gastro-intestinal (GI) tract receptors human intestinal peptide-associated transporter (HPT1), hPEPT1, D2H and human sucrose-isomaltase complex (hSI). (I) provide hPEPT1, D2H and human sucrose-isomaltase complex (hSI). (I) provide
                                                                                                                                                               Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hDEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pecto; therapeutic agent delivery; therapy; fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                      GST/GI transport
                                                                                                                                                                                                                                                                                                                          04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                    AAW74103 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                 15-мау-1998;
                                                       19-NOV-1998
                                                                                           WO9851325-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KRIEAIPQIDXYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      represents a fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ă,
                 98WO-US10088
                                                                                                                                                                                                                                                                                      receptor
                                                                                                                                                                                                                                                                                                                                                                                                  peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        294pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98.7%;
                                                                                                                                                                                                                                                                                  binding protein fusion sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1149; DB 20;
Pred. No. 7.9e-113;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                    Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                     pectoris;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              that bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
9
                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                             RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       receptors human intestinal peptide-associated transporter (HPTI), CC hepsyll, D2H and human sucrose-isomaltase complex (hSI). (I) provide active transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, cc cancer, migraine, or angina pectoris. Specifically they are used to caliver insulin or leuprolide, but many other suitable therapeutic agents are disclosed, including genes or inhibitory nucleic acid, imaging agents card antigens. (I) may also provide targeting to the GI tract. Other uses cof (I) are: (1) to determine the level of specified receptors in a sample (in a binding assay); and (ii) to screen for molecules that bind (I). Immunogenic analogues or derivatives of (I) are used to raise antibodies and in immunoassays. The antibodies are used to locate, detect and canding in the provide targeting to the craise antibodies and in immonassays. The antibodies are used to locate, detect and consure (I), e.g. for imaging, monitoring treatment, tissue analysis correctly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alvarez
Omahony
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        glutathione-S-transferase and a gastro-intestinal transport protein binding peptide. The invention relates to purified proteins (I) that specifically to at least one of the gastro-intestinal (GI) tract
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras antibodies, used to deliver therapeutic or diagnostic agents through, the gastrointestinal tract, e.g. insulin or leuproli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CYTO-)
                Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex
                                                                GST/GI transport receptor binding protein fusion sequence.
                                                                                                       04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1999-009568/01.
                                                                                                                                                                            AAW74112 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example; Page 209; 294pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-MAY-1997;
                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                               KRIEAIPQIDKYLKSSKYIAMPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                            DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MSPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
hPEPT1; human; GI tract :
stinal peptide-associated
                                                                                                                                                                                                                                                                                                                                                                                                              GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        al Similarity
215; Conserv
                                                                                                                                                                                                                                                                                                                                         DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CYTOGEN CORP
ELAN CORP PL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             247 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Belinka BA,
Patterson CA,
                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  represents a fusion protein between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cagney GM,
, Singleton
                                                                                                                                                                            248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1149; DB 20; Pred. No. 7.9e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Carter JM,
              sucrose-isomaltase
                                                                                                                                                                                                                                                                     218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        u
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or leuprolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bind
```

0;

```
밁
                                                                                                   γΩ
                                                                                                                                             В
                                                                                                                                                                           δÃ
                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                             CC receptors human intestinal peptide-associated transporter (HPT1),

CC hPEPT1, D2H and human sucrose-isomaltase complex (hSI). (I) provide

CC active transport of therapeutic agents through human and animal GI tissue

CC (into the blood) for in vivo delivery, particularly for treatment or

CC prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia,

CC cancer, migraine, or angina pectoris. Specifically they are used to

CC deliver insulin or leuprolide, but many other suitable therapeutic agents

CC are disclosed, including genes or inhibitory nucleic acid, imaging agents

CC and antigens. (I) may also provide targeting to the GI tract. Other uses

CC of (I) are: (i) to determine the level of specifical receptors in a sample

CC (in a binding assay); and (ii) to screen for molecules that bind (I).

CC Immunogenic analogues or derivatives of (I) are used to raise antibodies

CC and in immunoassays. The antibodies are used to locate, detect and

CC measure (I), e.g. for imaging, monitoring treatment, tissue analysis

CC etc., also for peptide purification and immobilisation.
                                                                                                                                                                                                                                                                                              Best Local Similarity Matches 215; Conserv
                                                                                                                                                                                                                                                                                                                 Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            glutathione-S-transferase and a gastro-intestinal transport protein binding peptide. The invention relates to purified proteins (I) that specifically to at least one of the gastro-intestinal (GI) tract
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris; therapeutic agent delivery; therapy; fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9851325-A2
                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This sequence represents a fusion protein between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example; Page 215-216; 294pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1999-009568/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (CYTO-) CYTOGEN CORP. (ELAN-) ELAN CORP PLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-NOV-1998
181
                                  181
                                                                      121
                                                                                                          121
                                                                                                                                               61
                                                                                                                                                                                 61
                                                                                                                                                                                                                       _
                                                                                                                                                                                                                                                           _
                                                                                                                                                                  GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                       DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK
KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                      DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                             GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                    248 AA;
                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Belinka BA, (
Patterson CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97US-0046595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98WO-US10088.
                                                                                                                                                                                                                                                                                                           98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cagney GM,
Singleton
                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                          Score 1149; DB 20;
Pred. No. 8e-113;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Carter JM,
J;
                                  218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lambkin
                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                Length 248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ij
                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 that bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or
F
                                                                                                          180
                                                                      180
                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                         60
                                                                                                                                             120
                                                                                                                                                                                                                                                                                              0
```

밁

Ş

GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV

Query Match Best Local Matches

215;

Conservative

0

Score 1149; DB 2 Pred. No. 8e-113; 0; Mismatches

20; ω

Length

Indels

0;

Gaps

0;

60 60 Similarity

98.7%; 98.6%;

B Š

61 13 Н

```
This sequence represents a fusion protein between
CC glutathione-S-transferase and a gastro-intestinal transport protein
CC binding peptide. The invention relates to purified proteins (I) that bind
CC specifically to at least one of the gastro-intestinal (GI) tract
CC receptors human intestinal peptide-associated transporter (HPT1),
CC hPEPT1, D2H and human sucrose-isomaltase complex (hSI). (I) provide
CC active transport of therapeutic agents through human and animal GI tissue
CC (into the blood) for in vivo delivery, particularly for treatment or
CC prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia,
CC cancer, migraine, or angina pectoris. Specifically they are used to
CC deliver insulin or leuprolide, but many other suitable therapeutic agents
CC and antigens. (I) may also provide targeting to the GI tract. Other uses
CC and antigens. (I) may also provide targeting to the GI tract. Other uses
CC of (I) are: (i) to determine the level of specifical receptors in a sample
CC (in a binding assay); and (ii) to screen for molecules that bind (I).
CC measure (II). e.g. for imaging monitoring treatment: fissue antibodies
CC and in immunoassays. The antibodies are used to locate, detect and
CC measure (II). e.g. for imaging monitoring treatment: fissue analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras and antibodies, used to deliver therapeutic or diagnostic agents to, through, the gastrointestinal tract, e.g. insulin or leuprolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hpEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1999-009568/01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alvarez VL,
Omahony DJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (CYTO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9851325-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           therapeutic agent delivery; therapy; fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GST/GI transport receptor binding protein fusion sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAW74113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW74113 standard; peptide;
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                   Example;
                                    also for peptide purification and immobilisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CYTOGEN CORP
ELAN CORP PLO
                                                                                                                                                                                                                                                                                                                                                                                                                                 Page 216; 294pp; English.
248 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Belinka BA, Ca
                                                         e.g. for imaging, monitoring treatment,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORP PLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97US-0046595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98WO-US10088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cagney GM,
, Singleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Carter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lambkin
                                                           tissue analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            o
H
```

98.6%;

8e-113;

0

밁 Š 밁 δÕ 밁 õ

밁 S

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                  CC This sequence represents a fusion protein between
CC glutathione-S-transferase and a gastro-intestinal transport protein
CC binding peptide. The invention relates to purified proteins (I) that bind
CC specifically to at least one of the gastro-intestinal (GI) tract
CC receptors human intestinal peptide-associated transporter (HPTI),
CC hPEPTI, D2H and human sucrose-isomaltase complex (hSI). (I) provide
CC active transport of therapeutic agents through human and animal GI tissue
CC (into the blood) for in vivo delivery, particularly for treatment or
CC prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia,
CC cancer, migraine, or angina pectoris. Specifically they are used to
CC are disclosed, including genes or inhibitory nucleic acid, imaging agents
CC are disclosed, including genes or inhibitory nucleic acid, imaging agents
CC and antigens. (I) may also provide targeting to the GI tract. Other uses
CC of (I) are: (i) to determine the level of specified receptors in a sample
CC (in a binding assay); and (ii) to screen for molecules that bind (I).
CC (munogenic analogues or derivatives of (I) are used to raise antibodies
CC and in immunoassays. The antibodies are used to locate, detect and
CC measure (I), e.g. for imaging, monitoring treatment, tissue analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAW74121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 13
 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras antibodies, used to deliver therapeutic or diagnostic agents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pectoris;
                                                             measure (I)
etc., also
                                                                                                                                                                                                                                                                                                                                                                         Example; Page 222; 294pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1999-009568/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (CYTO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GST/GI transport receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAW74121 standard;
                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Omahony
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     therapeutic agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŠΈ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CYTOGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                        the
                              248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Belinka BA, co
                                                                                                                                                                                                                                                                                                                                                                                                        gastrointestinal tract,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                            peptide
                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-0046595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98WO-US10088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        peptide;
                                                          purification
 . 78;
                                                                                                                                                                                                                                                                                                                                                                         English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cagney GM,
Singleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             binding
Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein fusion sequence
1149;
                                                                                                                                                                                                                                                                                                                                                                                                     e.g. insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Carter
J;
                                                             1mmobilisation
DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ä,
20;

    chimaeras and ostic agents to, or leuprolide

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IJ;
                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
```

Length 248;

```
RESULT 14
AAW74122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity Matches 215; Conserv
                   glutathione-S-transferase and a gastro-intestinal transport protein binding peptide. The invention relates to purified proteins (I) that bind specifically to at least one of the gastro-intestinal (GI) tract receptors human intestinal peptide-associated transporter (HPTI), hpEPTI, D2H and human sucrose-isomaltase complex (hSI). (I) provide active transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophilia, anaemia, cancer, migraine, or angina pectoris. Specifically they are used to deliver insulin or leuprolide, but many other suitable therapeutic agents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alvarez
Omahony
                                                                                                                                                                                                                                               This sequence represents a fusion protein between
                                                                                                                                                                                                                                                                                                                                       New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras antibodies, used to deliver therapeutic or diagnostic agents through, the gastrointestinal tract, e.g. insulin or leuprol:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gastro-intestinal transport receptor; binding protein; hSI; HPT1; D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pecto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GST/GI transport receptor binding protein fusion sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW74122 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         therapeutic agent delivery;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (ELAN-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (CYTO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFLSKLFEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSPILGYWKIKGLVQRTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ρς,
Σζ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CYTOGEN CORP.
                                                                                                                                                                                                                                                                                             Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Belinka BA, co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                 222-223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98WO-US10088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                peptide;
                                                                                                                                                                                                                                                                                          294pp; English.
genes or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cagney GM,
, Singleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      therapy; fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 8e-
); Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ξ
  inhibitory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Carter
J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                218
nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lambkin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                     to,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pectoris;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                               ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
agents
```

```
AAW74100
ID AAW74100
ID AAW74400
ID AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC GAStr
KW D2H;
KW D2H;
KW OSteo
KW OSteo
KW OSteo
AC Thea
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74
AC AAW74

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and antigens. (1) may also provide targeting to the GI tract. Other uses of (I) are: (1) to determine the level of specified receptors in a sample (in a binding assay); and (ii) to screen for molecules that bind (I). Immunogenic analogues or derivatives of (I) are used to raise antibodies and in immunoassays. The antibodies are used to locate, detect and measure (I), e.g. for imaging, monitoring treatment, tissue analysis etc., also for peptide purification and immobilisation.
                                                                                                                           New proteins that bind specifically to receptors in the gastro-intestinal tract and related nucleic acid - chimaeras antibodies, used to deliver therapeutic or diagnostic agents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GST/GI transport receptor binding protein fusion sequence.
                                                                                                                                                                                                                                                                                 Alvarez VL,
Omahony DJ,
                                                                                                                                                                                                                                                                                                                                                           (CYTO-) CYTOGEN CORP
(ELAN-) ELAN CORP PLO
                                                                                                                                                                                                                                                                                                                                                                                                                                    15-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          W09851325-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         therapeutic agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D2H; hPEPT1; human; GI tract receptor; sucrose-isomaltase complex; intestinal peptide-associated transporter; hypertension; diabetes; osteoporosis; haemophilia; anaemia; cancer; migraine; angina pecto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gastro-intestinal transport receptor; binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04-MAY-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAW74100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAW74100 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KRIEAIPQIDKYLKSSKYIAWPLOGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK
                                                                                                                                                                                                                               1999-009568/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDEETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              al Similarity
215; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  248 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                           CORP PLC.
                                                                                                   gastrointestinal tract,
                                                                                                                                                                                                                                                                              Belinka BA,
Patterson CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0046595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      88001SD-0M86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         delivery; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                peptide;
                                               294pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98.7%;
                                                                                                                                                                                                                                                                              Cagney GM,
, Singleton
                                                 English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1149; D
Pred. No. 8e-1
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cancer; migraine; angina pectoris;
                                                                                                      ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fusion protein
                                                                                                                                                                                                                                                                                 Carter
J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                         Lambkin
                                                                                                   chimaeras and ic agents to, r leuprolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

This sequence

represents a

fusion protein

betweer

```
Š
                                             밁
                                                                                  Š
                                                                                                                            밁
                                                                                                                                                            δÃ
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 215
                                                                                                                                                                                                                                                                                                                                                                                                                                 receptors human intestinal peptide-associated transporter (HPTI), hepptide associated transporter (HPTI), hepptide active transport of therapeutic agents through human and animal GI tissue (into the blood) for in vivo delivery, particularly for treatment or prevention of hypertension, diabetes, osteoporosis, haemophila, anaemia, cancer, migraine, or angina pectoris. Specifically they are used to deliver insulin or leuprolide, but many other suitable therapeutic agents are disclosed, including genes or inhibitory nucleic acid, imaging agents and antigens. (I) may also provide targeting to the GI tract. Other uses of (I) are: (1) to determine the level of specified receptors in a sample (in a binding assay); and (ii) to screen for molecules that bind (I). Immunogenic analogues or derivatives of (I) are used to raise antibodies and in immunoassays. The antibodies are used to locate, detect and measure (I), e.g. for imaging, monitoring treatment, tissue analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   glutathione-S-transferase and a gastro-intestinal transport protein binding peptide. The invention relates to purified proteins (I) that specifically to at least one of the gastro-intestinal (GI) tract
                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                             121
                                                                                                                              61
                                                                                                                                                                   13
                                                                                                                                                                                                                                MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                            DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                         GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                            MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                           DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                             215;
                                                                                                                                                                                                                                                                                                                                                                                                                    also
                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                             248
                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                    peptide purification and immobilisation.
                                                                                                                                                                                                                                                                                                                98.7%;
98.6%;
                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                              Score 1149; DB 2
Pred. No. 8e-113;
                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                  20;
                                                                                                                                                                                                                                                                                          ω
:-
                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                      248;
                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             that bind
                                                                                                                                                                                                              60
                                               180
                                                                                                                                120
                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                             0
```

Search completed: May 20, Job time: 19.4058 secs 2003, 11:33:55 밁

181

KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             on:
        and is derived
                                                                                                                                                                                                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                        1149
1149
                                                                                                                                                                                                                                                      1149
1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         May 20, 2003, 11:30:54; Search time 7.02587 Seconds (without alignments) 912.939 Million cell upda
                                                                                                                                                                                                                                                                                                                                                                                                                                            Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     is the number of results predicted by chance to have a ster than or equal to the score of the result being printed. Then by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSPILGYWKIKGLVQPTRLL.....IAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-081-408-5
1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    262574 segs, 29422922 residues
                                  998888888888888777
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5 5 5
                                                                                                                                                                                                                                                                                                                                                                                                             98.7
                                                                                                                                                                                                                                                                                                    98
98
89
89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Issued_Patents_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/BCTUS_COMB.pep:*
/cgn2_6/ptodata/2/iaa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                              DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gapext 0.5
US-08-470-837-26
US-08-1868-452-26
US-08-192-722A-2
US-08-327-874A-6
US-08-910-820-6
US-08-910-820-6
US-08-910-820-6
US-08-910-820-6
US-08-910-820-6
US-08-915-746-6
US-08-395-507-1
US-08-395-507-2
US-08-395-507-2
US-08-395-507-2
US-08-395-67-2
US-08-395-67-2
US-08-395-67-2
US-08-395-67-2
US-08-395-67-2
US-08-395-67-2
US-08-395-67-2
US-08-506-2968-70
US-08-506-2968-70
US-08-506-2968-70
US-08-506-2968-73
US-08-506-2968-73
US-08-506-2968-73
US-08-506-2968-73
US-08-506-2968-73
US-08-506-2968-73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUMMARIES
                                                                         Sequence 26, Appli
Sequence 27, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 3, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 2, Appli
Sequence 11, Appli
Sequence 11, Appli
Sequence 11, Appli
Sequence 21, Appli
Sequence 31, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                            Description
                             Sequence
Sequence
Sequence
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; Sequence 26; Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-470-837-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 1
                             Query Match 98.7
Best Local Similarity 98.6
Matches 215; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
```

1149 98.7 472 4 US-09-115-746-10 1149 98.7 515 4 US-08-974-549A-604 1149 98.7 515 4 US-08-974-549A-604 1149 98.7 517 4 US-08-974-549A-604 1149 98.7 531 4 US-08-974-549A-603 1149 98.7 538 3 US-08-974-180-20 1149 98.7 538 3 US-08-974-180-20 1149 98.7 542 4 US-08-506-296B-65 1149 98.7 545 4 US-08-506-296B-72 1149 98.7 547 4 US-08-506-296B-72 1149 98.7 559 4 US-08-506-296B-72 1149 98.7 559 4 US-08-506-296B-72 1149 98.7 564 2 US-08-115-746-2 1149 98.7 564 2 US-08-115-746-2 1149 98.7 564 2 US-08-115-746-2 1149 98.7 579 2 US-08-506-296B-71 1149 98.7 632 4 US-08-506-296B-71 1149 98.7 632 4 US-08-506-296B-71 1149 98.7 632 4 US-08-506-296B-71 1149 98.7 632 4 US-08-506-296B-71 1149 98.7 632 4 US-08-506-296B-71 1149 98.7 632 4 US-08-506-296B-71 1149 98.7 633 4 US-08-516-894-8	45	44	43	42	41	40	39	38	37	36	ω S	34	33	32	31	30	29	2
7 514 US-08-97 515 US-08-97 516 US-08-97 517 US-08-97 518 US-08-97 519 US-08-97 519 US-08-97 519 US-08-97 519 US-08-50 519 US-08-50	1149	1149	1149	1149	1149	1149	1149	1149	1149	1149	1149	1149	1149	1149	1149	1149	1149	1149
4 US-08-974 4 US-08-974 4 US-08-974 4 US-08-974 4 US-08-974 4 US-08-974 4 US-08-974 4 US-08-506 4 US-08-506 4 US-08-506 4 US-08-506 4 US-08-506 5 US-08-506 6 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506 7 US-08-506	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7
US-08-974 US-08-974 US-08-974 US-08-974 US-08-974 US-08-974 US-08-974 US-08-976 US-08-506	643	643	635	632	579	564	564	559	547	545	542	538	536	530	517	515	514	4/2
-08 -974 -08 -974 -08 -974 -08 -974 -08 -974 -08 -974 -08 -974 -08 -506 -08	4	N	4	4	N	4	Ν	4	4	4	4	4	ω	4	4	4	4	4
	US-09-115-746-8	-08	-08-506	-08-506-296B-7	-08-864	-09-115-746	-08-216-894	-08-506	-08-506-296B-7	-08-506-296B-7	-08-506	-08-974	-08-974	-08-974	-08-974	-08-974	-08-974	-09-115

ALIGNMENTS

```
, MOLECULE TYPE: protein US-08-470-837-26
                                                                                                                                                                                                                                                                                                                                                                                                                 ZIP: 90025-3395

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0,

CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                            TELEFAX: 310-445-9031
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08, FILING DATE: FILING DATE: FILING DATE: CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION: Sharp, Janice A. REGISTRATION NUMBER: 34,05
REFERENCE/DOCKET NUMBER: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: LLS Angeles
CITY: LOS Angeles
CTATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Nimni, Marcel E.
APPLICANT: Hall, Frederick L.
APPLICANT: Hall, Frederick L.
APPLICANT: Wu, Tai-Lan
APPLICANT: Wu, Lingtao
APPLICANT: Cheung, David T.
TITLE OF INVENTION: Transforming Growth Factor
TITLE OF INVENTION: and
TITLE OF INVENTION: Their Use in Wound Healing
                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 218 amino acid
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                       TELEPHONE: 310-445-1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SE: Merchant & Gould
11150 Santa Monica Boulevard, Suite 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/08470837
                                                                                                                                                         218 amino acids
                    98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                 US/08/470,837
                                                                                                                                                                                                                                                                                                 34,051
                                                                                                                                                                                                                                                                                30630-1US01
Score 1149; DB 1;
Pred. No. 6.8e-114;
"""" tches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Growth Factor B Fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                          #1.30
                                    Length 218;
    Indels
    0
  Gaps
```

0

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                   ġ
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: PRT
; ORGANISM: Human
US-08-868-452-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-868-452-26
                                                                                                                                                                                           RESULT 3
US-08-129-722A-2
                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/08/868,452C CURRENT FILING DATE: 1997-06-03 NUMBER OF SEQ ID NOS: 51
SOFTWARE: FastSEQ for Windows Version 3.0 SEQ ID NO 26
LENGTH: 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence 26, Application US/08868452C Patent No. 6352972
                                                                                                                                                         Sequence 2, Application US/08129722A Patent No. 6303369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity Matches 215; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                               GENERAL INFORMATION:
APPLICANT: Spana, Carl
APPLICANT: Fargnolli, Joseph
APPLICANT: Bolen, Joseph B.
TITLE OF INVENTION: PROTEIN EXPRESSION SYSTEM
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Marcel E. Nimni
APPLICANT: Frederick L. Hall
APPLICANT: Lingtao Wu
APPLICANT: Bo Han
APPLICANT: Edwin Shors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: BONE MORPHOGENETIC PROTEINS AND THEIR TITLE OF INVENTION: USE IN BONE GROWTH FILE REFERENCE: 17972-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                 181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                   KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                      DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MSPILGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
 P.O. Box 4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                  Burton Rodney
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1149; DB 4;
pred. No. 6.8e-114;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
SEQUENCE CHARACTERISTICS:
LENGTH: 231 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-129-722A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-327-874A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 215; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 6, Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: 609) 252-4520
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
NAME: Gaul, Timothy J.
REGISTRATION NUMBER: 33,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: BAYLOR COLLEGE OF I
APPLICANT: SMITH, JAMES R.
APPLICANT: DRUTZ, DAVID J.
APPLICANT: WILSON, DEBORAH R.
APPLICANT: ZUMSTEIN, LOUIS A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION: TELEPHONE: (609) 252-5901
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: SENESCENT CELL DERIVED INHIBITORS TITLE OF INVENTION: DNA SYNTHESIS NUMBER OF SEQUENCES: 36
                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MPUTER READABLE FOR...
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE:
                                                                                                                                                                                                          CITY: NEW YORK STATE: NEW YORK
                                                                                                                                                                                                                                                                              STREET:
                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08543-4000
                                                                                                                                       10166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , Application US/08327874A
6372249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Princeton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New Jersey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     231 amino acids
                                                                                                                                                                                                                                                                              200 PARK AVENUE
                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BAYLOR COLLEGE OF MEDICINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                     ROGERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ) 252-4526
) 252-4526
-- NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98.7%;
                                                                                                                                                                                                                                                                                                                 & WELLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/08/129,722A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        33,111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DC25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1149; DB 4;
Pred. No. 7.4e-114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .4e-114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 231;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
```

0;

```
Š
                            Ş
                                                                                         Ş
                                                                                                                        ₽
                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                 US-08-327-874A-6
                                                                                                                                                                                                                                                    Matches 215;
                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (212) 878-837
.NFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 232 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                              IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                           ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: PCT | FILING DATE: 26-AUG-1994 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: pi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: 36 ELECOMMUNICATION INFORMATION:
181
                             181
                                                             121
                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 24-OCT-1994 TORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/203,535
FILING DATE: 25-FEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 0: FILING DATE: 17-NOV-1993
                                                                                                                          61
                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                              ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE: 13-JUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 02-NOV-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                  CLONE:
                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CELEPHONE:
                                                                            DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                         GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
             KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                           DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                        GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NORTON, GERARD P
                                                                                                                                                                                                                                                                                                                                                                                                                                                           232 amino acids
                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                              Schistosoma japonicum
                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (212)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TUMBER: US 08/274,535
13-JUL-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-APR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16-DEC-1991
                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          878-3148
                                                                                                                                                                                                                                                                98.7%;
98.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 07/808,523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PCT US94/09700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 08/113,372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US 08/229,420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 08/153,564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 07/970,462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08/327,874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US/08/327,874A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        36,621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6:
                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3634-8-CIP10
                                                                                                                                                                                                                                                 Score 1149; DB 4;
Pred. No. 7.4e-114;
D; Mismatches 3;
                                                                                                                                                                                                                                                                               Length 232;
                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                 Gaps
                                                                                                                        120
                                                                                                                                                                                     60
                                                                                                                                                                                                                                                   0
```

```
Query Match
Best Local Similarity
Matches 215; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 5
PCT-US94-09700-6
                                                                             ; CLONE: G
PCT-US94-09700-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 6, Application PC/TUS9409700 GENERAL INFORMATION:
                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 232 amino acid
                                                                                                         ORGANISM: Schi
IMMEDIATE SOURCE:
                                                                                                                                         HYPOTHETICAL: NO ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: US 08/229,420
APPLICATION NUMBER
FILING PARTY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 07
FILING DATE: 02-NOV-1992
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE: 16-DEC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 27
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 25-FEB-1994 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                     MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 08/153,564 FILING DATE: 17-NOV-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 30-AUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OPERATING SYSTEM:
SOFTWARE: Patenti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                          NAME: AUERBACH, JEFFREY I.
REGISTRATION NUMBER: 32,680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                        POPOLOGY:
                                                                                                                                                                                                                                                                                CELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WASHINGTON
                                                                                                                                                                                                     amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1299 PENNSYLVANIA AVENUE, N.W
                                                                                                                                                                                                                    232 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BAYLOR COLLEGE OF MEDICINE
SMITH, JAMES R,
VENTION: SENESCENT CELL DERIVED INHIBITORS
                                                                                                                                                                                                                                                                   (202)
                 Conservative
                                                                                                                         Schistosoma japonicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HOWREY & SIMON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER: US 08/113,372
30-AUG-1993
                                                                                                                                                                                                                                                                                 202) 383-7451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-DEC-1991
                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                   383-6610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA SYNTHESIS: 36
                                98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US 08/203,535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US 07/970,462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 07/808,523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PCT/US94/09700
                                                                                                                                                                                                                                                  6:
                0
                                                                                                                                                                                                                                                                                                                225-102-CIP7-PCT
              Score 1149; DB 5;
Pred. No. 7.4e-114;
0; Mismatches 3;
                                             Length 232;
                 Indels
                 0;
                 Gaps
```

Ş 밁

MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID

60

0

```
밁
                          οy
                                                          밁
                                                                                    δÃ
                                                                                                                       В
                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                            US-08-910-820-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-910-820-4
                                                                                                                                                                                 Best Local Similarity Matches 215; Conserv
                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 4, Applic
Patent No. 6258579
                                                                                                                                                                                                                                                                                                   TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 272 amino acids
                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER: 86
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Mercurio, Frank
APPLICANT: Zhu, Hengyi
APPLICANT: Barboss, Miguel
APPLICANT: Barboss, Miguel
APPLICANT: Murray, Brion W.
APPLICANT: MURRAY, BRION W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
TITLE OF INVENTION: COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: 6300 C
CITY: Seattle
STATE: Washing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
   121
              121 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                           13
                                                                                       61
                                                                                                                                                                                                                                                       TOPOLOGY: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                       TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                  1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLDYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                        GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                  MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                        GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION:
                                                                                                                                                                                                                                                                                       amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/08910820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Washington : USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Floppy disk
                                                                                                                                                                                             98.7%;
                                                                                                                                                                                                                                                                                                                                   4..
                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                              860098.413C1
                                                                                                                                                                                          Score 1149; DB 4;
Pred. No. 9.3e-114;
                                                                                                                                                                              Mismatches
                                                                                                                                                                                                          Length 272;
                                                                                                                                                                              Indels
                                                                                                                                                                            0;
                                                                                                                                                                            Gaps
180
                                                      120
                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                              0
```

```
Š
RESULT 8
US-08-910-820-3
                                                                                                   Š
                                                                                                                                       밁
                                                                                                                                                                    δÃ
                                                                                                                                                                                                          당
                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                    멼
                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-910-820-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-910-820-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 6,
                                                                                                                                                                                                                                                                                                                                               Matches 215;
                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (206) 682-6031 INFORMATION FOR SEQ ID NO: 6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: BAIDOSA, ....-
APPLICANT: Li, Gian
APPLICANT: Murray, Brion W.
APPLICANT: MURRAY, Brion W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
TITLE OF INVENTION: COMPLEX AND METHODS OF USE THEREFOR
TITLE OF STOURNCES: 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 272 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: 86
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                  181
                                                                                                                                   181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                     181
                                                                                                                                                                                                          61
                                                                                                                                                                                                                          61 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                           1 MSPILGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                             1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                          GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/08910820 6258579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Washington
                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zhu, Hengy:
                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                 98.7%;

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                Score 1149; DB 4; Length 272; Pred. No. 9.3e-114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         218
                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                            Gaps
```

0;

```
20
                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                         US-08-910-820-5
                                                                                 Sequence 5, Application US/08910820 Patent No. 6258579
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: SEED and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 282 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: MUITAY, BRION W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
TITLE OF INVENTION: COMPLEX AND METHODS OF USE THEREFOR
                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 86
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UMBER OF SEQUENCES:
                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENGTH:
                                                                                                                                                                                                                                                                                                      DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                             GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                              KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                   DELSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDFMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                      GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                             MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3, Application US/08910820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zhu, Hengyi
Barbosa, Miguel
                                                                 Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mercurio, Frank
                               Zhu, Hengyi
Barbosa, Miguel
Murray, Brion W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Li, Gian
              Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-AUG-1997
N: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1149; DB 4;
Pred. No. 9.8e-114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 282;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

밁 Ş В δÃ 밁 Ş

JS-08-216-894-6

Sequence 6, Application US/08216894 Patent No. 5876734 GENERAL INFORMATION:

APPLICANT: Kirchhoff, Louis v.
APPLICANT: Otsu, Keiko
TITLE OF INVENTION: POLYPEPTIDES FOR DIAGNOSING
TITLE OF INVENTION: WITH TRYPANOSOMA CRUZI
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:

COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk

20007-5109

STREET: 3000 K Stree CITY: Washington, D.

E: Foley & Lardner 3000 K Street, N.W ashington, D.C.

N.W.

Suite

500

COUNTRY:

```
US-08-910-820-5
                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN PC-DOS/MS-DOS
SOFTWARE: PATENTIN PC-DOS/MS-DOS
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEPHONE: (206) 623-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: (206) 682-6031 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: amino
STRANDEDNESS:
                                                                                                                                                                           61
                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                    1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENGTH:
                                                                                                                                                                      GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                         KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                           DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                    DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                             MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E: SEED and BERRY LLP 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               282 amino acids
                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                 98.7%; Score 1149; DB 4; 98.6%; Pred. No. 9.8e-114; tive 0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                             DB 4; Length 282;
                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                      0,
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 11
US-09-115-746-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 6, Application US/09115746 Patent No. 6228601
                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: Kirchhoff, Louis V.
APPLICANT: Otsu, Keiko
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 307 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OPEKALING
SOFTWARE: PatentIn Release #1.0,
SOFTWARE: PATENTION DATA:
CURRENT APPLICATION DATA:
US_08/216,894
                                                                                  FILING DATE:
PRIOR APPLICATION DATA:
                                                                                                                                       COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER: 85
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 24-MAR-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: protein
                                ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: POLYPEPTIDES FOR TITLE OF INVENTION: WITH TRYPANOSOMA NUMBER OF SEQUENCES: 10

CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELLEFAX: (TELLEFAX: 904136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REGISTRATION NUMBER: 85326/102/DRLO
                                                    APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
les 215; Conserv
                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
NAME: BENT, Stephen A. REGISTRATION NUMBER: 29,768
                                                                                                                                                                                                                                                                                                  STREET:
                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                20007-5109
                                                                                                                                                                                                                                                                          SEE: Foley & Lardner
': 3000 K Street, N.W.,
Washington, D.C.
                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Release #1.0, Version #1.25
                                                                     08/216,894
                                                                                                                      US/09/115,746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>ه</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1149; DB 2;
Pred. No. 1.1e-113;
                                                                                                                                                                                                                                                                                                  Suite 500
                                                                                                                                                                                                                                                                                                                                                                   FOR DIAGNOSING INFECTION
SOMA CRUZĮ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
```

```
밁
                                                                                       ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 12
US-09-217-228-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; MOLECULE TYPE: protein US-09-115-746-6
밁
                                                                                                                                                                                          US-09-217-228-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: 8532
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
TELEFAX: (202)672-5399
TELEFAX: 904136
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 307 amino acids
                                                                                                                Query Match
Best Local Similarity
Matches 215; Conserv
                                                                                                                                                                                                                                                     SEQ ID NO 6
LENGTH: 331
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 98.7%;
Best Local Similarity 98.6%;
Matches 215; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 6, Application US/09217228 Patent No. 6323178
                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Heath Jr., William F. APPLICANT: Schoner, Brigitte E. APPLICANT: Heiman, Mark L. APPLICANT: Heiman, Mark L.
                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/217,228
CURRENT FILING DATE: 1998-12-21
NUMBER OF SEQ ID NOS: 35
                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Becker, Gerald W.
APPLICANT: Varshavsky, Alexander D.
TITLE OF INVENTION: Beta-lipotropin and Uses
FILE REFERENCE: X-12139
                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Ver. 2.0
                                                                                                                                                                                                          OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 DELSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
               GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                          Description of Artificial Sequence: partner
                                                                                                                                          98.7%;
                                                                                                                         Score 1149; DB 4;
Pred. No. 1.2e-113;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1149; DB 4;
Pred. No. 1.1e-113;
0: Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         85326/102/DRLO
                                                                                                                                                       Length 331;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                            Indels
                                                                                                                                                                                                                         GST fusion
                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                          Gaps
                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
   Ş
                                      DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-395-507-1
                                                                    Ş
                                                                                                                                                                                   US-08-395-507-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATE APPLICANT: I
                                                                                                           Query Match
Best Local Similarity
Matches 215; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/395,507
FILING DATE: 27-FEB-1995
CLASSIFICATION UNBER: JP Hei-6-54672
APPLICATION NUMBER: JP Hei-6-54672
TILING DATE: 28-FEB-1995
ATTORNEY/AGENT INFORMATION:
NAME: Amernick, Burton A.
REGISTRATION NUMBER: 24.852
REFERENCE/DOCKET NUMBER: 1581/007
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 331-7111
                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (202) 293-622
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              quence 1, Application US/08395507 tent No. 5578456
                                                                                                                                                                                                                                                                                             ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                            ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                           AYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: protein HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                NAME/KEY: Protein
LOCATION: 1.352
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
TOPOLOGY: no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 20036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET:
     61
                                                                                                                                                                                                                                                                          ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                    ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDEMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                         MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ឧ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E: Pollock, Var
1990 M Street,
                                                                                                                                                                                                                                                                                                                                                                                                                  352 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Okada, Masahisa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ueno, Eiich
                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fujii, No. 5578456uyuki
                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fujimura, Katsuya
                                                                                                                                                                                                                                                                                                                                                                not relevant
                                                                                                                                                                                                                                                                          rabbit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         293-6229
                                                                                                                            98.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Anti-treponema Pallidum Antibody
                                                                                                                                                                                                  /note- "G15 Antigen"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Vande Sande & Priddy
et, NW, Suite 800
                                                                                                         0
                                                                                                                          Score 1149; DB 1; Pred. No. 1.3e-113;
                                                                                                           Mismatches
                                                                                                                                            Length 352;
                                                                                                         Indels
                                                                                                         0;
                                                                                                         Gaps
                                     60
                                                                                                         0;
```

```
Ş
                                                                                                                             Ş
                                                                                                                                                                밁
                                                                                                                                                                                                           Query Match
Best Local Similarity
Watches 215; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
      δÃ
                                       밁
                                                                                                     В
                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 14
US-08-216-894-4
                                                                                                                                                                                                                                                                                       US-08-216-894-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/216,894
FILING DATE: 24-MAR-1994
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REGISTRATION NUMBER: 29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 4, Application US/08216894 Patent No. 5876734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: Kirchh
APPLICANT: Otsu,
                                                                                                                                                                                                                                                                                                                                                                               TELEX: 904136 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                       MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
LENGTH: 354 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: 85
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)572-5300
TELEPHAX: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: POLYPEPTIDES FOR DIAGNOSING INFECTION TITLE OF INVENTION: WITH TRYPANOSOMA CRUZI NUMBER OF SEQUENCES: 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                  TYPE: amino acid TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Foley & Lardner STREET: 3000 K Street, N.W., Suite
                                                                                                                                                              DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Washington, D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20007-5109
                                                                                                                                                                                                                                                                                                                                                354 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kirchhoff, Louis V.
                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                     protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Keiko
                                                                                                                                                                                                                                         98.7%;
                                                                                                                                                                                                                          0
                                                                                                                                                                                                                          Score 1149; DB 2;
Pred. No. 1.4e-113;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      500
                                                                                                                                                                                                                                                       Length 354;
                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                            0
```

```
Š
                                                                                                                                                      g
                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; MOLECULE TYPE: protein US-09-115-746-4
Search completed: May 20, 2003, 11:40:57 Job time: 8.02587 secs
                                                                            밁
                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 15
US-09-115-746-4
                                                                                                                                                                                                                                                                                                                                                                              Query Match 98.7%;
Best Local Similarity 98.6%;
Matches 215; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 4, Application US/09115746 Patent No. 6228601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY_AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 8532
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5390
TELEPAX: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 354 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn Release #1.0, v
CURRENT APPLICATION DATA:
APPLICATION UMBER: US/09/115,746
FILING DATE:
PRIOR APPLICATION DATA:
APPLICATION UMBER: 08/216,894
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Kirchhoff, Louis V.
APPLICANT: OCSU, Keiko
TITLE OF INVENTION: POLKPEPTIDES FOR DIAGNOSING INFECTION
TITLE OF INVENTION: WITH TRYPANOSOMA CRUZI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: (2.5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORRESPONDENCE ADDRESS:
                                                                                            181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                  121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                    121 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDEMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                  61 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DDRESSEE:
                                                                                                                                                                                                                                                                                                  MSPILGYMKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                          GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SSEE: Foley & Lardner Suite 500 R Street, N.W., Suite 500 Washington, D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          85326/102/DRLO
                                                                                                                                                                                                                                                                                                                                                                              Score 1149; DB 4;
Pred. No. 1.4e-113;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                    Length 354;
                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                0;
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0% Maximum Match 100%
                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                         Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                         Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-081-408-5
1164
1 MSPILGYWKIKGLYQPTRLL.....IAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                          100
001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         375593 seqs, 99172665 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     May 20, 2003, 11:37:59; Search time 34.7335 Seconds
                   Published_Applications_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Listing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                // Cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
// Cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
// Cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
// Cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
// Cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
// Cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
// Cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
// Cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
// Cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
// Cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                         Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gapext 0.5
                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (without alignments)
622.443 Million cell updates/sec
           Sequence 5, Appli
Sequence 20, Appli
Sequence 4, Appli
Sequence 7, Appli
Sequence 23, Appli
Sequence 6, Appli
Sequence 6, Appli
Sequence 3, Appli
Sequence 5, Appli
Sequence 6, Appli
Sequence 26, Appli
Sequence 27, Appli
Sequence 27, Appli
Sequence 23, Appli
                                                                                                                                                                                                                                                                                                                     Description
                                                               밁
                                                                                           δÃ
                                                                                                                            밁
                                                                                                                                                     δÃ
                                                                                                                                                                                          밁
                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 1
US-10-081-408-5
                                                                                                                                                                                                                                                         Matches 218;
```

45	44	43	42	41	40	39	38	37	36	35	34	ω ω	32	31	30	29	28	27	26	25	24	23	22	21	
85.5	86	86	88.5	89	90	95	96	0	104	161.5	169.5	169.5	179.5	196.5	196.5	483.5	1146	1149	1149	1149	1149	1149	1149	1149	
7.3	7.4	7.4	7.6	7.6	7.7	8.2	8.2	8.8	8.9	13.9	14.6	14.6	15.4	16.9	16.9	41.5	98.5	98.7	98.7	98.7	98.7	98.7	98.7	98.7	
241	2397	1668	359	263	379	233	233	233	240	222	222	203	222	230	222	229	649	1140	422	412	401	394	364	354	
9	10	10	9	9	9	10	10	10	φ	ဖ	ဖ	ဖ	9	10	9	9	9	9	9	ဖ	ø	10	9	10	•
US-09-854-133-204	US-09-815-242-12265	US-09-815-242-5654 (US-09-738-626-4895	US-09-769-787-68	US-10-253-007-46	P	US-09-765-213A-4	US-09-765-213A-2	US-09-964-899-23	US-09-784-739-1	US-09-784-739-5	US-09-847-208-48	US-09-784-739-3	US-09-925-301-1318)9-784-739-	US-10-102-806-554	US-10-174-784-9	US-09-950-634-4	US-09-824-438-7	US-09-775-964-34	US-10-190-866A-1	US-09-990-578-4	US-09-788-268-14	US-09-823-153-8	** ** ***
Sequence 204, App	ç	Sequence 5654, Ap	Sequence 4895, Ap	Sequence 68, Appl	Sequence 46, Appl	6	-	Sequence 2, Appl:	23,	Sequence 1, Appli	Sequence 5, Appli	48	3, App	Sequence 1318, Ap	Sequence 4, Appli	Sequence 554, App	Sequence 9, Appli	Sequence 4, Appli	7,	Sequence 34, Appl	, ,	Sequence 4, Appli	,	e 8,	TAND IN THE STANDERS

ALIGNMENTS

Sequence 5, Application US/10081408
Patent NO. US20020160482A1
GENERAL INFORMATION:
APPLICANT: ADTAINS, n, Lars
APPLICANT: Nilsson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001
CURRENT APPLICATION NUMBER: US/10/081,408
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: SE 0100625-3
PRIOR APPLICATION NUMBER: US 60/272,247
PRIOR FILING DATE: 2001-02-28
NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO
LENGTH: 218
TYPE: PRT ; ORGANISM: Schistosoma japonicum US-10-081-408-5 Query Match
Best Local Similarity 1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID Conservative 100.0%; Score 1164; DB 9; 100.0%; Pred. No. 3.4e-106; 0. Mismatches Indels Length 218; 0, Gaps 180 60 60

0;

```
APPLICANT: ADTAİMS, , LATS
APPLICANT: NISSON, JOAKİM
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001
CURRENT APPLICATION NUMBER: US/10/081,408
CURRENT FILING DATE: 2002-02-21
PRIOR APPLICATION NUMBER: US/10/0625-3
PRIOR FILING DATE: 2001-02-28
PRIOR APPLICATION NUMBER: US 60/272,247
PRIOR FILING DATE: 2001-02-28
PRIOR FILING DATE: 2001-02-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; LENGTH: 998
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Recombinant construct
US-10-081-408-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 2
US-10-081-408-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 3
US-10-081-408-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                             US-10-081-408-4
                                                                                                  SEQ ID NO 4
LENGTH: 218
TYPE: PRT
                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: Abrahms,n , Lars
APPLICANT: Nilsson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001
CURRENT APPLICATION NUMBER: US/10/081,408
CURRENT FILLING DATE: 2002-02-21
CURRENT FILLING DATE: 2002-02-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 99.6%; Score 1159; DB 9; I Best Local Similarity 100.0%; Pred. No. 7.7e-105; Matches 217; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 4, Application US/10081408 Patent No. US20020160482A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 20, Application US/10081408 Patent No. US20020160482A1
Query Match
Best Local Similarity
                                                                                                                                                           PRIOR APPLICATION NUMBER: SE 0100625-3
PRIOR FILING DATE: 2001-02-23
PRIOR APPLICATION NUMBER: US 60/272,247
PRIOR FILING DATE: 2001-02-28
NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                               ORGANISM: Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        218 RIEAIPQIDKYLKS¶KYIAWPLQGWQATFGGGDHPPK 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62 DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98.7%;
98.6%;
                                                                               japonicum
Score 1149; DB 9; Pred. No. 9.9e-105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 998;
                 Length
                 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
```

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
RESULT 5
US-10-267-311-23
; Sequence 23, Application US/10267311
; Publication No. US20030050469A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; NAME/KEY: misc_feature
; OTHER INFORMATION: Des
US-09-823-153-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-823-153-7
                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Sim:
Matches 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 7
LENGTH: 239
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 7, Application US Patent No. US20020025540AJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Hendrick, Joseph
APPLICANT: Vinitsky, Alexander
APPLICANT: Vinitsky, Alexander
TITLE OF INVENTION: ISCLATION OF FUNCTIONALLY ACTIVE GAMMA-SECRETASE PROTEIN COMPL
TITLE OF INVENTION: METHODS FOR DETECTION OF ACTIVITY AND INHIBITORS THEREOF
FILE REFERENCE: D0004
CURRENT APPLICATION NUMBER: US/09/823,153
CURRENT FILING DATE: 2001-07-02
NUMBER OF SEQ ID NOS: 11
SOFTWARE: Patentin version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Bristol-Myers Squibb Company
APPLICANT: Roberts, Susan
APPLICANT: Pak, Roger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                              181
                                                                                                                                                               181
                                                                                                                                                                                                    121
                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                   _
                                                                                                                                                                                                                                                                                                                                                          1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFFNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MSPILGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                              KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                         MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                          KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           215; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/09823153
                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Description of Artificial Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                 98.78;
98.68;
                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1149; DB 10;
Pred. No. 1.1e-104;
                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                              218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ψ
                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PS1 PEPTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
APPLICANT: Mizzen, Lee A.

APPLICANT: Mizzen, Lee A.

TITLE OF INVENTION: INDUCTION OF A THI-LIKE RESPONSE IN VITRO
FILE REFERENCE: 12071/002001

CURRENT APPLICATION NUMBER: US/10/267,311

CURRENT FILING DATE: 2002-10-09

PRIOR APPLICATION NUMBER: US/09/613,303

PRIOR FILING DATE: 2000-07-10

PRIOR FILING DATE: 12000-07-10

PRIOR APPLICATION NUMBER: US 60/143,757

PRIOR FILING DATE: 1999-07-08

NUMBER OF SEQ ID NOS: 55

SOSTWARRE: FastSEQ for Windows Version 4.0

SEQ ID NO 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-844-988-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; OTHER INFORMATION: fusion sequence US-10-267-311-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 4, Application US/09844988 Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
mes 215; Conserv
                                                                                                                                                                                                                                                                                                                                                                                    MULTAY, BRION W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
COMPLEX AND METHODS OF USE THEREFOR
                                                                                                    COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                         PRIOR
                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KRIEAIPOIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                             CLASSIFICATION:
                                                              APPLICATION NUMBER: US/09/844,988 FILING DATE: 26-Apr-2001
                                                                                                                                                                                                                                                                   CITY: Seattle
STATE: Washington
APPLICATION DATA:
APPLICATION NUMBER: 08/910,820
                                                                                                                                                                                                                                                    COUNTRY: USA
                                                                                                                                                                                                                                                                                                              STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                   98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Zhu, Hengyi
Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Marvin
                                                                                                                                                                                                                                                                                                                                     SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98.7%;
                                          <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1149;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.le-104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-844-988-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 6, Application US/09844988 Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO: 4: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENY INFORMATION:
NAME: MAKI, DAVID J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: (206) 622-4900
ZIP: 98104

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PATENTIN Release #1.0,

CURRENT APPLICATION DATA:
                                                                                                                                                                                                             CORRESPONDENCE ADDRESS
ADDRESSEE: SEED at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE DESCRIPTION: SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: <Unknown>
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEPHONE: (206)
TELEFAX: (206) 68
                                                                                                                                                      CITY: Seattle
STATE: Washington
                                                                                                                                                                                             STREET:
                                                                                                                                                                                                                                                             MUTTAY, Brion W.
OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
                                                                                                                                      COUNTRY: USA
                                                                                                                                                                                                                                                   OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                            Barbosa, Miguel
                                                                                                                                                                                         EE: SEED and BERRY LLP 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                            Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98.7%;
98.6%;
                                                                                                                                                                                                                                                                                                                                                                Hengy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1149; DB y;
Pred. No. 1.3e-104;
"""" 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   860098.413C1
                                                                                                                                                                                             701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

ATTORNEY/AGENT INFORMATION:

APPLICATION NUMBER: 08/910,820 FILING DATE: 1997-08-13

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/09/844,988 FILING DATE: 26-Apr-2001 CLASSIFICATION: <Unknown>

Version

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-844-988-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-844-908-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 4, Application US/09844908 Patent No. US20020151021A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO: 6:
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,908
FILING DATE: 27-Apr-2001
CLASSIFICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
AFTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELEPHONE: (206) 622-4900
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE DESCRIPTION: SEQ ID NO: 6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                               CITY: Seattle
STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 272 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: 860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                              98104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zhu, Hengyi
Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Murray, Brion W.
                                                                                                                                                                                                                                                                                                                                                                                                                                     6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1149; DB 9; Pred. No. 1.3e-104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; SEQUENCE DESCRIPTION: SEQ ID NO: 4: US-09-844-908-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-844-908-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 6, Application US/09844908 Patent No. US20020151021A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
Matches 215; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 272 amino acids
                 TELEFAX: (206) 682-6
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                            APPLICATION NUMBER: US/09/844,908
FILING DATE: 27-Apr-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION UNMBER: US/08/910,820
FILING DATE: 12-AUG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61. GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                        ZIP: 98104
ZIP: 98104
COMPUTER READABLE FORM:
COMPUTER FLOOPY disk
                                                                           REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MUTTAY, BIION W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: SEED and BERRY LLP STREET: 6300 Columbia Center, 701 Fifth Avenue CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STATE: Washington COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zhu, Hengyi
Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98.7%;
                                                          682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1149; DB 10;
Pred. No. 1.3e-104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
```

0;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-844-908-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 10
US-09-844-988-3
; SEQUENCE DESCRIPTION: US-09-844-988-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3, Application US/09844988 Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                               TELEFAX: (206) 682-6
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                NAME: MAKI, DAVId J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622.4900
                                                                                                                                                                                                                                APPLICATION NUMBER: 08/910,820 FILING DATE: 1997-08-13 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,988
FILING DATE: 26-Apr-2001
CLASSIFICATION: - CUnknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LI, Gian
Murray, Brion W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 98104
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMIKMFEDRISHKTYLNGDHVTHPDEMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MSPILGYWKIKGLYOPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Seattle
STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: SEED and BERRY LLP STREET: 6300 Columbia Center, 701 Fifth Avenue
                                                                 TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS: <Unknown>
TOPOLOGY: linear
                                 TOPOLOGY: line
                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
                                                                               LENGTH: 282 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               zhu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hengyi
                                                 <Unknown>
                                                                                                                                  682-6031
               SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1149; DB 10;
Pred. No. 1.3e-104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
SEQUENCE DESCRIPTION: US-09-844-988-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 11
US-09-844-988-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 5, Application US Patent No. US20020158764A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 98.7
Best Local Similarity 98.6
Matches 215; Conservative
                                                                                                                                TELEPHONE: (206) 622-4900
TELEPAX: (206) 682-6931
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 DFLSKLPEMIKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: Patentin Release #1.0, Version CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/844,988
FILING DATE: 26-Apr-2001
CLASSIFICATION: CURKNOWN>
                                                                                                                                                                                                            APPLICATION NUMBER: 08/910,820
FILING DATE: 1997-08-13
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.413C1
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MUTTAY, Brion W.
TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DELSKLPEMLKMEEDRICHKTYLNGDHVTHPDEMLYDALDVVLYMDPMCLDAEPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: Seattle
STATE: Washington
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/09844988
                                                                                              LENGTH: 282 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET:
                                                                           STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zhu, Hengyi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lí, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98.7%;
                                      SEQ ID NO:

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1149; DB 9; Pred. No. 1.4e-104;
                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 282;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        #
                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
```

Query Match 98.7%; Best Local Similarity 98.6%; Matches 215; Conservative

Score 1149; DB 9; Pred. No. 1.4e-104; 0; Mismatches 3;

Length 282;

Indels

0

```
밁
                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                  ; SEQUENCE DESCRIPTION: SEQ ID NO: US-09-844-908-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 12
US-09-844-908-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 3, Application US/09844908 Patent No. US20020151021A1 GENERAL INFORMATION:
                                                                              Matches 215;
                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                           TELEPHONE: (206) 622-
TELEFAX: (206) 682-60
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Ver
CURRENT APPLICATION DATA:
APPLICATION UNMBER: US/09/844,908
FILING DATA: 27-Apr-2001
CLASSIFICATION: CURKNOWN>
PRIOR APPLICATION DATA:
APPLICATION UNMBER: US/08/910,820
FILING DATE: 12-AUG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Mak1, David J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                  MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 860098.413C1 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                    LENGTH: 282 amino acids
TYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STATE: Washington COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                   NAME: Maki, David J. REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 98104
                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Murray, Brion W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zhu, Hengyi
                                                                                                                                                                                      linear
                                                                                             98.7%;
98.6%;
                                                                                                                                                                                                                                                                                               682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                  622-4900
                                                                        Score 1149; DB 10;
Pred. No. 1.4e-104;
D; Mismatches 3;
                                                                                                                                                                   ω
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Version #1.30
                                                                                                          Length 282;
                                                                          Indels
                                                                          0
                                                                      Gaps
 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                          0
```

```
Ş
                                        멍
                                                                       Ş
                                                                                                                                                                                      ; SEQUENCE DESCRIPTION: SEQ ID NO: 5: US-09-844-908-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-844-908-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 5, Application US/09844908 Patent No. US20020151021A1 GENERAL INFORMATION:
                                                                                                            Query Match
Best Local Similarity
Matches 215; Conserva
                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                          1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/08/910,820
FILING DATE: 12-AUG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 860098.4.
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Murray, Brion W.

TITLE OF INVENTION: STIMULUS-INDUCIBLE PROTEIN KINASE COMPLEX AND METHODS OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE
   GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK
                                        MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Mercurio, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 27-Apr-2001 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/09/844,908 FILING DATE: 27-Apr-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                          TYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                       TELEFAX: (206) 682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                               LENGTH: 282 amino acids
                                                                                                                                                                                                                                                                                                                                                           TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Barbosa, Miguel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Li, Gian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESS:
                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                           (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hengyı
                                                                                                                                98.7%;
98.6%;
                                                                                                                                                                                                                                                                                                                                                           622-4900
                                                                                                                0
                                                                                                            Score 1149; DB 10;
Pred. No. 1.4e-104;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                860098.413C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       701 Fifth Avenue
                                                                                                                Indels
                                                                                                                                                 Length
                                                                                                                ;
;
                                                                                                                Gaps
                                          ό
```

밁

61

```
US-09-910-600-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; OTHER INFORMATION: Description of Artificial Sequence: L3cyto-Y641; OTHER INFORMATION: alone US-09-910-600-26
                                                                                                                                                                                                                                                          RESULT 15
US-10-267-311-25
: Sequence 25, Application US/10267311
: Publication No. US20030050469A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 26
LENGTH: 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 215; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 26, Application US/09910600 Publication No. US20030036631A1
                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/910,600 CURRENT FILING DATE: 2001-07-20 PRIOR APPLICATION NUMBER: 60/220,139 PRIOR FILING DATE: 2000-07-21 NUMBER OF SEQ ID NOS: 32
                                                                                          APPLICANT: Siegel, Marvin
APPLICANT: Chu, N. Randall
APPLICANT: Mizzen, Lee A.
APPLICANT: Mizzen, Lee A.
TITLE OF INVENTION: INDUCTION OF A THI-LIKE RESPONSE IN VITRO
FILE REFERENCE: 12071/002001
CURRENT APPLICATION NUMBER: US/10/267,311
CURRENT FILING DATE: 2002-10-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Longphre, Malinda
APPLICANT: Chang, Han
APPLICANT: Whitney, Gena
TITLE OF INVENTION: NOVEL SIGLECS AND USES
FILE REFERENCE: D0003NP
PRIOR APPLICATION NUMBER: US/09/613,303
PRIOR FILING DATE: ~2000-07-10
PRIOR APPLICATION NUMBER: US 60/143,757
PRIOR FILING DATE: 1999-07-08
NUMBER OF SEQ ID NOS: 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                      181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 DELSKLPEMLKMFEDRLSHKTYLNGDHVTHPDEMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 1149; DB 9;
Pred. No. 1.5e-104;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 298;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
δÃ
                                                                  B
                                                                                               Š
                                                                                                                                   В
                                                                                                                                                             δÃ
                                                                                                                                                                                               밁
                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                              ; FEATURE:
; OTHER INFORMATION: fusion sequence
US-10-267-311-25
     밁
                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 215; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 25 \,
                                                                                                                                                                                                                                                                                                                                                           LENGTH: 324
TYPE: PRT
ORGANISM: Artificial Sequence
181 KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                  121 DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                   61
                                                                                                                                                   61 GDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                  1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                                                                                 1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID 60
                                                                                                                                   GDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV 120
                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                98.7%;

 Mismatches

                                                                                                                                                                                                                                                                              Score 1149; DB 9;
Pred. No. 1.7e-104;
                                                                                                                                                                                                                                                                                             Length 324;
                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                  0;
```

Gaps

0

Search completed: May 20, Job time: 35.7335 secs 2003, 12:02:22

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB seq length: 0
DB seq length: 2000000000
                997
717.5
708.6
689
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
488.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
489.5
499.5
499.5
499.5
499.5
499.5
499.5
499.5
499.5
499.5
499.5
499.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-081-408-5
1164
1 MSPILGYWKIKGLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BLOSUM62
Gapop 10.0 , Gapext 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       May 20, 2003, 08:02:28 ; Search time 5.14571 Seconds (without alignments) 1757.161 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   112892 seqs, 41476328 residues
             SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSPILGYWKIKGLVQPTRLL.....IAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.5 (c) 1993 - 2003 Compugen
   GT26_SCHJA
GT27_SCHMA
GT26_SCHMA
GT29_FASHE
GT26_FASHE
GT26_FASHE
GT26_FASHE
GT76_FASHE
GT76_FASHE
GT76_FASHE
GT76_FASHE
GT76_FASHE
GT76_FASHE
GT76_FASHE
GT77_CT76_FASHE
GT77_CT76_FASHE
GT77_CT76_FASHE
GT77_ROUSE
GT77_HUMAN
GT78_HUMAN
GT78_HUMAN
GT78_CT1CM
GT78_CT1CM
GT78_CT1CM
GT78_CT1CM
GT78_OUSE
GT78_CT1CM
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_OUSE
GT78_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ltd
P08515 schistosoma
p35661 schistosoma
p35661 schistosoma
p356598 fasciola he
p31670 fasciola he
p31670 fasciola he
p31671 fasciola he
p30112 fasciola he
p30112 fasciola he
p30113 fasciola he
p30114 fasciola he
p30115 fasciola he
p30116 mus musculu
p46409 oryctolagus
p28161 homo sapien
p16413 cavia porce
p00226 mus musculu
p15626 mus musculu
p15626 mus musculu
p15626 mus musculu
p15626 mus musculu
p15626 mus musculu
p19639 mus musculu
p19639 mus musculu
p201266 homo sapien
p484774 mus musculu
p211266 homo sapien
p484774 mus musculu
p20136 gallus gallu
p240136 gallus gallu
p46419 dermatophag
p46426 dirofilaria
p46427 onchocerca
p60031 sus scrofa
p09211 homo sapien
p19157 mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Description
```

45	44	43	42	41	40	39	38	37	36	35	34
207.5	207.5	209.5	213.5	221.5	226.5	239	243	244	245	246	247
17.8	17.8	18.0	18.3	19.0	19.5	20.5	20.9	21.0	21.0	21.1	21.2
222	221	221	210	223	208	209	209	209	209	209	209
ب	ட	ب	۲	٢	۲	۳	Н	Н	Н	ب	۲
GTA1_MOUSE	GTA2_MOUSE	GTA2_RAT	GTP2_BUFBU	GTA1_RABIT	GTP_CAEEL	GTP_BOVIN	GTP1_MOUSE	GTP_MACMU	GTP_CRILO	GTP_RAT	GTP_CRIMI
P13745	P10648	P04903	P83325	008863	P10299	P28801	P46425	Q28514	P46424	P04906	P47954
mus muscul	mus musculu	rattus norv	bufo bufo (oryctolagus	caenorhabdi	bos taurus	mus musculu	macaca mula	cricetulus	rattus norv	cricetulus

ALIGNMENTS

88

This SWISS-PROT entry is copyright. It is produced through a collaboration

```
RESULT 2
GT27_SCHMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PDB; IGNE; 30-NOV-94.
PDB; IGTA; 07-FEB-95.
PDB; IGTB; 01-DEC-95.
PDB; IB8X; 12-APR-99.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
Pfam; PFOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entities
or send a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                     mansoni."
Mol. Biocl
                                                                                                                                                                                             MEDLINE-92131046; Pubmed-1775156; Wright M.D., Harrison R.A., Melder Another 26-kilodal+~~ -'
                                                                                                                                                                                                                                                                                                                           01-JUN-1994 (Rel. 29) Created)
01-JUN-1994 (Rel. 29) Last sequence update)
01-NOV-1995 (Rel. 32, Last annotation update)
01-thory (Rel. 32) Last annotation update)
clutathione S-transferase 26 kDa (EC 2.5.1.
antigen) (GST class-alpha)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M14654; AAB59203.1;
PIR; A26484; A26484.
PDB; IGNE; 30-NOV-94.
PDB; IGTA; 07-FEB-95.
                                                                                                                                                                                                                                                                                                                                                                                                 GT27_SCHMA
P35661;
  This SW
between
                                                                                                                                                                                                                                                                                  Schistosoma mansoni (Blood fluke).
Eukaryota; Metazoa; Platyhelminthes;
Schistosomatoidea; Schistosomatidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Transferase;
SEQUENCE 2
                                                                                                                                                                                                                                                                     Schistosomatoidea;
NCBI_TaxID=6183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                      1. Blochem. Parasitol. 49:177-179(1991).
FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NU OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.
FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY CHALVENT ACTIVITY: RX + glutathione - HX + R-S-glutathio SUBUNIT: HOMODIMER.
SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SWISS-PROT entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVCFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PF00043; GST_C; 1.
PF02798; GST_N; 1.
ferase; Antigen; Multigene
NCE 218 AA; 25498 MW; 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                              D., Harrison R.A., Melder A.M., Newport 26-kilodalton glutathione S-transferase
  the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
  Swiss
                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
ry is copyright. It is produced through Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98.7%;
98.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1149; D
Pred. No. 3.8e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   s family; 3D-structure.
5E2AC418BD0EF13F CRC64;
                                                                                                                                                                                                                                                                                     Schistosoma
                                                                                                                                                                                                                                                                                                 Trematoda; Digenea;
                                                                                                                                                                                                                                                                                                                                                                                                                  218
                                                                                                                                                                                                                                                                                                                                          update)
2.5.1.18) (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
.8e-90;
                                                                                                                                                                                                                                                                                                                                                                                                                ž
                                                                   R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                 G.R., Mitchell of Schistosoma
                                                                                                                                                                                                                                                                                                                                           26) (SM26/2
                                                                                                                                                                                                             Mitchell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         218;
  EMBL
a collaboration - MBL outstation
                                                                                                                            Ä
                                                                                                                                                       NUMBER
                                                                                                QF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                              G.F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
RESULT 3
GT26_SCHMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A COCOCCEPT THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF TH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ol-APR-1990 (Rel. 14, Created)
Ol-APR-1990 (Rel. 14, Last sequence upda
Ol-NOV-1995 (Rel. 32, Last annotation upda
Glutathione S-transferase 26 kDa (EC 2.:
antigen) (GST class-alpha).
Schistosoma mansoni (Blood fluke).
Eukaryota, Metazoa; Platyhelminthes; Transferase (EC 2.:
Schistosomatoidea; Schistosomatidae; Schistosomatoidea; Schistosomatoidea; Schistosomatidae; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schistosomatoidea; Schis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; M73624; -; NOT PIR; A45556; A45556. HSSP; P08515; 1GTA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the European Bioinfo
use by non-profit
modified and this st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GT26_SC
P15964;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities requires or send an email t
                                                                                                                                                                                                                                                                                                                                                                                                       2 M
                                                                                                                                                                                                                                                                                                                                                                                                                                Trottein F., Kieny M.P., Verwaerde C., Torpier G
Balloul J.-M., Schmitt D., Lecocq J.-P., Capron .
"Molecular cloning and tissue distribution of a
Schistosoma mansoni glutathione S-transferase.";
Mol. Biochem. Parasitol. 41:35-44(1990).
                                                                                                                                                                                                                   MEDLINE=90271935; PubMed=1693415;
Henkle K.J., Davern K.M., Wright M.D., Ramos A.J., Mitchell G.F.;
"Comparison of the cloned genes of the 26- and 28-kilodalton
glutathione S-transferases of Schistosoma japonicum and Schistosom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
STRAIN-Puerto Rican;
MEDLINE-90348716; PubMed-2385266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Transferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                               STRAIN-Puerto Rican;
                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 8-218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=6183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ۲
Biochem. Parasitol. 40:23-34(1990).

Biochem. Parasitol. 40:23-34(1990).

FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NU FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NU FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN FUNCTIONS ARE ALSO THE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO THE SOLUBILITY (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SCHMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QRIENLPPIKNYLNSNRYIKWPLQGWSATFGGGDAPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF00043; GST_C; PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   an email to license@isb-sib.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPR004046;
IPR004045;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  e; Antigen;
218 AA; 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NOT_ANNOTATED_CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               it institutions as long statement is not removed a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                           FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GST_Cterm.
GST_Nterm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85.1%;
83.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 990; DB 1
Pred. No. le-76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  e family.
D8D3EE9028B36185 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 n update)
2.5.1.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Trematoda; Digenea; Strigeidida; Schistosoma.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (See http://www.isb-sib.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Torpier G.,
P., Capron A.;
Ition of a 26-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     There are no ong as its co oved. Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A.;
26-kilodalton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pierce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26) (SM26/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and
                                                                                                                                                                                                                            Schistosoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Я.J.,
                                                                                IN THE
                                                                                                                                     NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  commerc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
```

```
B 5€
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FASHE
                                                                                                                                                                                                                                                                                                                                                                           Fasciola hepatica (Liver fluke).
Eukaryota; Metazoa; Platyhelmint
Echinostomida; Echinostomata; Fa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GT29_FASHE STANDARD; PRT; 220 AA. p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p565988; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56598; p56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; M31106; AAA29888.1; -.
EMBL; M26913; AAA29889.1; -.
PIR; A45523; A45523.
HSSP; P0851; 1GTA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institumodified and this statement entities requires a license
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CELLS. GST 26 MAY BE ACTIVELY EXCRETED I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---
                                                                                                                     SEQUENCE FROM N.A.
MEDLINE=92155306; PubMed=1740183;
Panaccio M., Wilson L.R., Crameri S.!
"Molecular characterization of cDNA;
transferases of Fasciola hepatica.";
Exp. Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         class-alpha)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00043; GST_C; Pfam; PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR004046; GST_Cterm. InterPro; IPR004045; GST_Nterm.
   MEDLINE-94039664; Popanaccio M., Wilson
                                                                    ERRATUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ransferase; Antigen;
EQUENCE 218 AA; 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
les 175; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HAEMATIN IN THE PARASITE GUT.

CATALYTIC ACTIVITY: RX + glutathione - HX + R-S-glutathione.
SUBBUIT: HOMODIMER.

TISSUE SPECIFICITY: TEGUMENT AND IN SUBTEGUMENTARY PARENCHYMAL
TISSUE SPECIFICITY: TEGUMENT AND IN SUBTEGUMENTARY PARENCHYMAL
TISSUE SPECIFICITY: TEGUMENT AND IN SUBTEGUMENTARY PARENCHYMAL
TISSUE SPECIFICITY: TEGUMENT AND IN SUBTEGUMENTARY PARENCHYMAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S.MANSONI.
SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Note the Swiss Institute Content Furopean Bioinformatics Institute. There are content for non-profit institutions as long as its content for non-profit institutions as long as its content for non-profit institutions as long as its content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institutions as long as its content for non-profit institutions as long as its content for non-profit institutions as long as its content for non-profit institutions as long as its content for non-profit institutions as long as its content for non-profit institutions as long as its content for non-profit institutions as long as its content for non-profit institutions as long as its content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profit institute Content for non-profi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced through a ceen the Swiss Institute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KCIEDLPQIKNYLNSSRYIKWPLQGWDATEGGGDTPPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nd this statement is not removed. Usage by and for commercial equires a license agreement (See http://www.isb-sib.ch/announce/email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                 azoa; Platyhelminthes; Trematoda; Digenea;
Echinostomata; Fascioloidea; Fasciolidae;
   PubMed=8224094;
on L.R., Crameri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Multigene family.
25401 MW; 061A6548A842D6E8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79.6%;
      Crameri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 927; DB pred. No. 2.1e .5; Mismatches
      S
                                                                                                                                                                                       .L., Wijffels G.L., sequences encoding
   ŀ
Wijffels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
.1e-71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 218
   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 restrictions
                                                                                                                                                                                       Spithill T.W. glutathione s
Spithill
                                                                                                                                                                                                                                                                                                                                                                                    Fasciola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                             ທ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

01-JUL-1993 15-DEC-1998 15-DEC-1998

(Rel. 26, Created)
(Rel. 37, Last sequence up)
(Rel. 37, Last annotation)
S-transferase 26 kDa 47 (1)

on update) (EC 2.5.1.18) update)

(GST47)

Glutathione

Eukaryota; Metazoa; Echinostomida; Echir NCBI_TaxID=6192;

SEQUENCE FROM N.A. MEDLINE-92155306;

GST class alpha).

(GST class alpha).

Fasciola hepatica (Liver fluke).

Fasciolidae;

Fasciola

GT27_FASHE P31670;

STANDARD;

PRT;

217

₹

```
GT27_FASHE
ID GT27.F
AC P31670
AC P31670
DT 15-DEC
DT 15-DEC
DT 15-DEC
DE GGST c
OS Fascio
OC Echino
OC Echino
OX NCBI.T
RN 151
RP SEQUEN
RX MEDLIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PATENT NUMBER WO9008819, 09-AUG-1990.

-!- FUNCTION: CONJUGATION OF REDUCED EJUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.

-!- FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN THE PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF HAEMATIN IN THE PARASITE GUT.

-!- CATALYTIC ACTIVITY: RX + GIUTATHIONE - HX + R-S-Glutathione.
-!- SUBUNIT: HOMODIMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Exthe European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and
                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUÊNCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Transferase; Antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; A00993; CAA00118.1; -. HSSP; P31670; 1FHE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entities requires a license agreement (See http://www.isb-sib
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                        185
                                                                                                                                                                                                                                                               123
                                                                                                                                                                                                                                                                                      125
                                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                                   65
                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                        Parasitol. 77:385-385(1993).
                                                                                                                                                                                                                                 AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP
                                                                                                                                                                                                                                                                                KLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIE
                                                                                                                                                                                                                                                                                                                      LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS
                                                                                                                                                                                                                 ALPSIKAYMESNRFIKWPLNGWHAQFGGGDAPP
                                                                                                                                                                                                                                                                DLPTTMKMWSDFLGKNPYLRGTSVSHVDFMVYEALDAIRYLEPHCLDHFPNLQQFMSRIE
                                                                                                                                                                                                                                                                                                             LTQSLAILRYIADKHGMIGSTPEERARVSMIEGAAVDLRQGLSRISYDPKFEQLKEGYLK 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
22
110
189
220 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22-220 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Α
                                                                                                                                                                                                                                                                                                                                                                                                                                            0
22
111
189
25598 1
                                                                                                                                                                                                                                                                                                                                                                                                                 61.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Multigene family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       MW;
                                                                                                                                                                                                                                                                                                                                                                                                         32;
                                                                                                                                                                                                                                                                                                                                                                                                                   Score 717.5;
Pred. No. le
                                                                                                                                                                                                                                                                                                                                                                                                                                                      DP -> VS (IN REF. 3).
A -> P (IN REF. 3).
; 27B9F150B75D101F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BY SIMILARITY.
Y -> V (IN REF.
                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                  le-53;
                                                                                                                                                                                                                                       217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             There are no restrictions ong as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 3).
. 3).
                                                                                                                                                                                                                                                                                                                                                                                                         51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TEMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                                                                                                                                                                                                                                                         ۲,
                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                     124
                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                         ٠
```

```
밁
                   δÃ
                                               В
                                                                  Q
                                                                                              В
                                                                                                                    ą
                                                                                                                                              밁
                                                                                                                                                                   Š
                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                        INIT_MET
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                between the Swiss Institute of Bioinformatics and the EMBL outstation -
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rossjohn J.,
Parker M.W.;
                                                                                                                                                                                                                                                                                                      InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF0043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                  EMBL; M77681; AAA29140.1; -. EMBL; A00996; CAA00121.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      parasite vaccine candidate:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=94039664; PubMed=8224094; Panaccio M., Wilson L.R., Crameri Exp. Parasitol. 77:385-385(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Panaccio M., Wilson L.R., Crameri S.L., Wijffels G.L., Spithill T.W., "Molecular characterization of cDNA sequences encoding glutathione Stransferases of Fasciola hepatica."; Exp. Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                             Transferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-98035725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Patent number WO9008819, 09-AUG-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Crystallization,
 184
                         185
                                               124
                                                                       125
                                                                                               64
                                                                                                                     65
                                                                                                                                                                                                          Local
                                                                                                                                                                       IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBCELLULAR LOCATION: Cytoplasmic. SIMILARITY: BELONGS TO THE GST SUF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATALYTIC ACTIVITY: RX + glutathione SUBUNIT: HOMODIMER.
                                                                                                                                                           LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK 64
 ALPKIKAYMESKRFIKWPLNGWAASFGAGDAPP
                                                          KLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIE
                                                                                           AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP
                                             ELPKTLKMWSDFLGDRHYLTGSSVSHVDFMLYETLDSIRYLAPHCLDEFPKLKEFKSRIE
                                                                                                                    LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS
                                                                                                                                             LGYWKLRGLAQPYRLFLEYLGEEYEEHLYGRDDREKWMSEKFNMGLDLPNLPYYIDDKCK
                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OF 7-105 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ... (3 ANGSTROMS).
... (3 ANGSTROMS).
... Feil S.C., Wiln
                                                                                                                                                                                                                                             102
217 AA;
                                                                                                                                                                                                                                                                                                                                                         29-JUL-98.
                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                             Antigen;
                                                                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   structural determination and analysis of candidate: Fasciola hepatica glutathione
                                                                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                              25281 MW;
                                                                                                                                                                                                         60.8%;
58.2%;
                                                                                                                                                                                                                                                                                           Multigene family; 3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wilce M.C.J.,
                                                                                                                                                                                              37;
                                                                                                                                                                                                                                                        RIGF
                                                                                                                                                                                            Pred. No. 6.50
); Mismatches
                                                                                                                                                                                                        Score 708;
Pred. No. 6.
                                                                                                                                                                                                                                                                     н
                                                                                                                                                                                                                                             OFB8BBFE63029E03 CRC64;
                                                                                                                                                                                                                                                                     ť
                                                                                                                                                                                                                                                          I (IN REF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S.Ļ.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUPERFAMILY. ALPHA FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sexton J.L.,
216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wijffels G.L.,
                                                                                                                                                                                                        DB 1;
.5e-53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
                                                                                                                                                                                                                                                          NI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           + XH
                                                                                                                                                                                                                                                        REF.
                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R-S-glutathione
                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spithill
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Spithill T.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T.W.,
                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                novel
                                                                                                                                                                                          Gaps
                                                                    184
                                                                                                                                            63
                                                                                                                                                                                            0
```

```
RESULT 6
GT28_FASHE
                                                                                                                                                                                                                                                                                      EMBL; M77680; AA...

EMBL; M77680; AA...

EMBL; A00994; CAA0011>..

EMBL; A00994; CAA0011>..

EMBL; A00994; CAA0011>..

InterPro; IPR004046; GST_Cterm.

InterPro; IPR004045; GST_N: 1.

Pfam; PF00043; GST_C; 1.

Pfam; PF00798; GST_N: 1.

Pfam; PF02798; GST_N: 1.

Pfam; PF02798; GST_N: 1.

Pfam; PF02798; GST_N: 1.

INTERWILG -> MIGRINGWA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF. N. SEYMSSRA (IN REF
                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JUL-1993
15-DEC-1998
15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GT28_FASHE P31671;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        modified and this statement is not removed. Usage by and foentities requires a license agreement (See http://www.isb-sib or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=92155306; PubMed=1740183;
Panaccio M., Wilson L.R., Crameri S.,
"Molecular characterization of cDNA:
transferases of Fasciola hepatica.";
Exp. Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fasciola hepatica (Liver fluke).
Eukaryota; Metazoa; Platyhelminthes; Trematoda;
Echinostomida; Echinostomata; Fascioloidea; Fasc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 class-alpha).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Crameri S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Patent number -1- FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Panaccio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-94039664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=6192;
                                                                65
64
                                                                                                                                         4
                                                                                                                                                                                                                 տ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATALYTIC ACTIVITY: RX + glutathione - HX + R-S-glutathio SUBUNIT: HOMODIMER. SIMILARITY: BELONGS TO THE GST SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ent number WO9008819, 09-AUG-1990.
FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.
FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN THE PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF HAEMATIN IN THE PARASITE GUT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cio M., Wilson L.R., Cramerı
Parasitol. 77:385-385(1993).
                                                            LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS 124
                                                                                                                                                                                                         LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK 64
                                                                                                                                         LGYWKIRGLQQPVRLFLEYLGEEYEEHLYGRNDREKWLGDKFNMGLDLPNLPYYIDDKCK 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OF 8-217 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FROM N.A.
92155306; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (Rel. 26, Created)
(Rel. 37, Last sequence up
(Rel. 37, Last annotation
S-transferase 26 kDa 7 (EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PubMed=8224094;
on L.R., Crameri
                                                                                                                                                                                                                                                                              Score 690; DB
Pred. No. 2.1e
30; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sec.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .L., Wijffels G.L., sequences encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
C 2.5.1.18) (GST7) (FH7) (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wijffels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fasciolidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Digenea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        G.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spithill T.W.; glutathione S-
                                                                                                                                                                                                                                                                                                                                                              217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Spithill T.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fasciola
                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .ch/announce/
                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                  0
```

Ωy В Ş

밁

KLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIE

184

Length

217;

0,

```
RESULT 7
GT26_EN AC
ID 6726_E)
AC
P30112
DT 15-DEC
DE GST c
CS Eascio
OC Echino
OC Echino
OC ECHINO
RA PANACE
RT LIANS
RN PEDLIN
RA PANACE
RT LEAST
RN [2]
RP SEQUEN
RX MEDLIN
RA PANACE
RT CONFIL
CC -1- F(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
CC -1- S(
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                        Transferase;
INIT_MET
CONFLICT
CONFLICT
CONFLICT
SEQUENCE 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-APR-1993 (Rel. 25, Crea
15-DEC-1998 (Rel. 37, Last
15-DEC-1998 (Rel. 37, Last
Glutathione S-transferase
                                                                                                                                                                                                                                                                                                       use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation between Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=93228188; PubMed=7682383;
Muro A., Rodriguez-Medina J.R., Hillyer G
"Sequence analysis of a Fasciola hepatica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-94039664; PubMed-8224094; Panaccio M., Wilson L.R., Crameri S.L., Wilffels G.L., Spithill T.W.; Exp. Parasitol. 77:385-385(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Panaccio M., Wilson L.R., Crameri S.L., Wijffe "Molecular characterization of cDNA sequences transferases of Fasciola hepatica."; Exp. Parasitol. 74:232-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (SSI CIASS'ALDIA).
Fasciola hepatica (Liver fluke).
Eukaryota; Metazoa; Platyhelminthes; Trematoda; Digenea;
Echinostomida; Echinostomata; Fascioloidea; Fasciolidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GT26_FASHE P30112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE-92155306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 9-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=6192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GST class-alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              J. Trop. Med. Hyg. 48:457-463(1993).

FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.

FUNCTION: GST ISOENZYMES APPEAR TO PLAY A CENTRAL ROLE IN THE PARASITE DETOXIFICATION SYSTEM. OTHER FUNCTIONS ARE ALSO SUSPECTED INCLUDING A ROLE IN INCREASING THE SOLUBILITY OF HAEMATIN IN THE PARASITE GUT.

CATALTIC ACTIVITY: RX + glutathione = HX + R-S-glutathione.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBCELLULAR LOCATION: Cytoplasmic SIMILARITY: BELONGS TO THE GST SUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBUNIT: HOMODIMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLPTTLKMWSDFLGDRQYLIGSSVSHVDFMVYEALDCIRYLAPQCLDDFPKLKEFKSRIE
    83
134
146
217 /
                                                                                                                     Antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
    Ş,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25, Created,
37, Last sequence update)
37, Last annotation update)
37, Last annotation update)
insferase 26 kDa 51 (EC 2.5.1.18) (GST51) (FH51)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=1740183;
                                                134
    146
25242
                          Multigene
0 BY
33 T-
34 N-
       ₹.
BY SIMILARITY.

r -> S (IN REF. 3).
y -> D (IN REF. 3).
-> -> T (IN REF. 3).
EFCA8FF7454EDC26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                     family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S.L., Wijffels G.L.,
NA sequences encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUPERFAMILY. ALPHA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           217
                                                                                                                                                                                                                                                                                                                             (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                         There are no restrictions ong as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G.V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              glutathione
                                                                                                                                                                                                                                                                                                                                                      Usage
                        CRC64;
                                                                                                                                                                                                                                                                                                                                                        γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                spithill T.W.;
glutathione S-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fasciola
                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                                                                                                                                                                                                        commercia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         183
                                                                                                                                                                                                                                                                                                                                                                                 ö
```

```
TO PET THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESULT OF THE RESUL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
01-JUL-1989 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Glutathione S-transferase Mu 1 (EC 2.5.1.18)
(Glutathione S-transferase GT8.7) (pmGT10) (G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.

MEDLINE-88330838; PubMed-3417659;
Pearson W.R., Reinhart J., Sisk S.C.,

"Tissue-specific induction of murine;
butylated hydroxyanisole.";
J. Biol. Chem. 263:13324-13332(1988).
PRELIMINARY SEQUENCE OF 1-24.
MEDLINE-86042634; PubMed-3864155;
                                                                                                  RNA
                                                                                                                    MEDLINE-83109018; PubMed-6822548;
Pearson W.R., Windle J.J., Morrow J.F., Benson A.M., Tencreased synthesis of glutathione S-transferases in anticarcinogenic antioxidants. Cloning and measurement
                                                                                                                                                                                                                                                                            Submitted
                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                         Reinhart J., Pearson W.R.; "The structure of two murine class-mu glutathione transferase coordinately induced by butylated hydroxyanisole."; arch. Biochem. Biophys. 303:383-393(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. MEDLINE=93290350; PubMed=8512323;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIINE-90094327; PubMed-2689439;
Townsend A.J., Goldsmith M.E., Pickett C.B., Cowan K.H.;
Townsend A.J., Goldsmith M.E. and expression in Escherichia col
"Isolation, characterization, and expression in Escherichia col
two murine Mu class glutathione S-transferase cDNAs homologous
rat subunits 3 (Yb1) and 4 (Yb2).";
J. Biol. Chem. 264:21582-21590(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID-10090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P10649;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTM1_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOUSE
                                                                                                                                                                                                                        PRELIMINARY SEQUENCE OF 1-40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              G
                                                                        Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DLPKIKAYMESEKFIKWPLNSWIASFGGGDAAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KLPEMIKMFEDRISHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LTQSVAIMRYIADKHGMLGTTPEERARISMIEGAAMDLRMGFVRVCYNPKFEEVKGDYLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LGYWKIRGLQQPVRLLLEYLGEEYEEHLYGRDDREKWFGDKFNMGLDLPNLPYYIDDKCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ELPTTLKMWSNFLGDRHYLTGSPVSHVDFMVYEALDCIRYLAPQCLEDFPKLKEFKSRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            al Similarity
125; Conserv
                                                                          Chem.
                                                                                                                                                                                                                                                                         (FEB-2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                        N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N.A.
                                                                          258:2052-2062(1983)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59.2%;
58.7%;
                                                                                                                                                                                                                                                                         ូ
                                                                                                                                                                                                                                                                         the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 689; DB
Pred. No. 2.6e
33; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Anderson K.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
.6e-51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                L8) (GST
) (GST 1-
                                                                                                                              measurement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               55;
                                                                                                                                                                                                                                                                         databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GST class-mu [ 1-1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transferase mRNAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Euteleostomi;
; Murinae; Mus
                                                                                                                           Talalay P.
In response
ent of messe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Adler P.N.;
                                                                                                                           messenger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ٦
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    coli of jous to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                     ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γģ
```

```
₽
                                       Ş
                                                                                                        밁
                                                                                                                                               δõ
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STEER REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST REAREST 
                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; J03952; AAA37747.1; ...
EMBL; J04632; AAA37705.1; ...
EMBL; L13448: -; NOT_ANNOTATED.
EMBL; BC003822; AAH03822.1; ...
PIR; A20831; A20831;
PIR; A20831; A20846.
PIR; I24735; I24735.
PIR; A34159; A34159.
PIR; A34159; A34159.
PIR; S33860; S33860.
HSSP; P04905; 2GST.
SWISS-2DPAGE; P10649; MOUSE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a c between the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and for entities requires a license agreement (See http://www.isb-sib.or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mitchell A.E., Morin D., Lame M.W., Jones A.D.;
"Purification, mass spectrometric characterization, modification of murine glutathione S-transferases.",
Chem. Res. Toxicol. 8:1054-1062(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transferase; Multigene family INIT_MET 0 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR004045;
InterPro; IPR004045;
InterPro; IPR003081;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MGD; MGI:95860;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-96189427; PubMed-8605288; Mitchell A.E., Morin D., Lame M.W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-96189427;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  common
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRINTS; PR01267; GSTRNSFRASEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -1- MASS SPECTROMETRY: MW-25838.4; MW_ERR-2; METHOD-Electrospray -1- SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Proc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mannervik B., Alin P., Gu
Warholm M., Joernvall H.;
     183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Identification of three classes of cytosolic glutathione transferase ommon to several mammalian species: correlation between structural
                                                                                                        123
                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                        59
                                                                                                                                                                                                                                                                                                          w
                                                                                                                                                                                                                                                                                                                         4 ILGYWKIKGLVOPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUBUNIT: HOMODIMER.
SUBCELLULAR LOCATION: Cytoplasmic.
MASS SPECTROMETRY: MW-25838.4; MW-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROP CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-
  FLARFEGLKKISAYMKSSRYIATPI
                                                                                                                             KVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVS
                                                                                                                                                                                                                                                                                          FKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                KPEFLKTIPEKMKLYSEFLGKRPWFAGDKVTYVDFLAYDILDQYRWFEPKCLDAFPNLRD
                                                                                                                                                                                                                              IDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETL 118
                                                                                                                                                                                              IDGSHKITQSNAILRYLARKHHLDGETEEERIRADIVENQVMDTRMQLIMLCYNPDFEKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PF00043; GST_C; PF02798; GST_N;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              enzymatic
                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          :SSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAH03822.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sci. U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25839 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GST_Cterm.
GST_Nterm.
GST_mu.
                                                                                                                                                                                                                                                                                                                                                                                                                               42.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Guthenberg
                                                                                                                                                                                                                                                                                                                                                                                                        39;
                                                                                                                                                                                                                                                                                                                                                                                                                             Score 489.5;
Pred. No. 1.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82:7202-7206(1985).
                                                 203
207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A1EE3938F590B829 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C., Jensson H., Tahir M.K.,
                                                                                                                                                                                                                                                                                                                                                                                           1.8e-34;
70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ELECTROPHILES
HX + R-S-gluta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A WIDE NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              covalent
                                                                                                                                                                                                                                                                                                                                                                                                                                                       217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                  62
                                                                                                                                                                                                                                                                                                                                                    58
                                                                                                                                                                                                                                                                                                                                                                                                   ۲
```

```
RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-AUG-1987
01-AUG-1988
16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-AUG-1988 (Rel. 08, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Glutathione S-transferase Ybl (EC 2.5.1.18) (GST class-mu 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTM1_RAT P04905;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Rat liver glutathione S-CDNA clone and regulation phenobarbital.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE-86033768; PubMed-3840477;
Ding G.J.-F., Lu A.Y.H., Pickett C.B.;
"Rat liver glutathione S-transferases. Nuc
of a Ybl cDNA clone and prediction of the
sequence of the Ybl subunit.";
J. Biol. Chem. 260:13268-13271(1985).
        X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS)
Fu J.-H., Rose J., Tam M.F., Wang B.-
"New crystal forms of a mu-class glut
                                                                                                                                                                                                                                                                                                                                                                                        Chang C., Saltzman A.G., Sorensen N.S., Hilpakka R.A., Li "Identification of glutathione S-transferase Yb1 mRNA as androgen-repressed mRNA by cDNA cloning and sequence anal J. Biol. Chem. 262:11901-11903(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (3)
SEQUENCE FROM N.A.
MEDLINE-86224097; PubMed-3011803;
MEDLINE-86224097; PubMed-3011803;
                                                                                                                      X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
MEDLINE-93041702; PubMed-1420139;
Ji X., Zhang P., Armstrong R.N., Gilli
                                                                                                                                                                                           transferase
                                                                                                                                                                                               MUTAGENESIS OF CYS-86.
MEDLINE-91354218; PubMed-1883338;
Hsieh J.-C., Huang S.-C., Chen W.-L., Lai Y.-C., Tam M.F.;
"Cysteine-86 is not needed for the enzymic activity of glutathione transferase 3-3.";
                                                                                                                                                                                                                                                                              purification, molecular properties Biochem. J. 292:379-384(1993).
                                                                                                                                                                                                                                                                                                       Ben-Arie N., Khen M., Lancet D. "Glutathione S-transferases in
                                                                                                                                                                                                                                                                                                                                     STRAIN-Wistar; TI:
MEDLINE-93277499;
                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 1-23.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-87308179; PubMed-3040722;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-86312882; PubMed-2875437;
Lai H.-C.J., Grove G., Tu C.-P.D.;
"Cloning and sequence analysis of a cDNA
S-transferase Yb subunit.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                             the mu
                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                              X., Zhang P., Armstrong R.N., Gilliland G.L.; he three-dimensional structure of a glutathione S-transferase e mu gene class. Structural analysis of the binary complex of cenzyme 3-3 and glutathione at 2.2-A resolution."; ochemistry 31:10169-10184(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Acids Res.
                                                                                                                                                                              278:293-297(1991).
                                                                                                                                                                                                                                                                                                                                   TISSUE=Olfactory
19; PubMed=8503873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        261:7952-7957(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . (CLONE PGTR200). PubMed=2875437; e G., Tu C.-P.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (CLONE PGTA/C44).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14:6101-6114(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S-transferases. DNA sequence analysis fon of the Ybl and Yb2 mRNAs by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rodkey J.A.,
                     Wang B.-C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; | Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                epithelium;
          glutathione
                                                                                                                                                                                                                                                                                          olfactory epithelium: and odorant biotransf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nucleotide sequence analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bennett C.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complete amino
                                                                                                                                                                                                                                                                                                                                                                                                        sequence analysis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Chain
           S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             þ
                                                                                                                                                                                                                                                                                            biotransformation.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rat

 (GST M1-1)

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Murinae; Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ľu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A.Y.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                    :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ø
           rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yb2
                                                                                                                                                                                                          ç
```

```
EMBL; X04229; CAA27811.1; -.
EMBL; M11719; AAA41287.1; -.
EMBL; J02810; AAA41293.1; -.
PIR; A24085; A24085.
PIR; A24085; A24085.
PIR; A25510, A25510.
PIR; A29794; A29794.
PIR; S17167; S17167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BIOCHEMISTRY 33:1043-1052(1994).

-I- FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.
-I- FUNCTION: THE OLFACTORY GST MAY BE CRUCIAL FOR THE ACUITY OF THE OLFACTORY PROCESS.
-I- CATALYTIC ACTIVITY: RX + glutathione - HX + R-S-glutathione.
-I- SUBGULIT: HOMODIMER OR HETERODIMER.
-I- SUBGULITAR LOCATION: Cytoplasmic.
-I- MISCELLANEOUS: RAT LIVER GLUTATHIONE S-TRANSFERASES (GST) CONSIST OF BINARY COMBINATIONS OF THREE MAJOR CLASSES OF SUBUNITS DESIGNATED: YA (25 KDA), YB (27 KDA) AND YC (28 KDA).
-I- MISCELLANEOUS: YB SUBCLASS SELECTIVELY BINDS STEROID HORMONES.
-I- SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   glutathione S-transferase as revealed by X-ray crystallographic analysis of product complexes with the diastereomers of 9-(S-glutathionyl)-10-hydroxy-9,10-dihydrophenanthrene.";
                                                                                                                            Transferase;
INIT_MET
MUTAGEN
                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                        Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PF1NTS; PR01267; GSTNNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Armstrong R.N., Gilliland G.L.; "Structure and function of the xenoblotic substrate binding site
STRAND
TURN
HELIX
TURN
STRAND
TURN
                                                                          TURN
HELIX
                                                                                                        CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Acta Crystallogr. D 50:219-224(1994).
                                                                 TURN
                                                                                               STRAND
                                                                                                                                                                                          InterPro; IPR004045; GST_Nterm.
InterPro; IPR003081; GST_mu.
                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
                                                                                                                                                                                                                            1GSB;
1GSC;
2GST;
3GST;
3GST;
4GST;
6GST;
6GSU;
6GSV;
6GSV;
6GSX;
5FWG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Johnson W.W.,
                                                                                                                                                                                                                IPR004046; GST_Cterm
                                                                                                                                                                                                                                                                                                                                      31-OCT-93
                                                                                                                                                  Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PubMed=8110735;
                                                                                                        199
189
189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sesay M.A., Dickert L., Prasad S.M., Ammon H.L.,
                                                                                                                                                   family;
                                                                                                        C->S: NO CHANGE IN ACTIVITY.
I -> N (IN REF. 3).
KS -> NC (IN REF. 2).
                                                                                                                                                    3D-structure;
                                                                                                                                                    Olfaction.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
```

```
Query Match
Best Local S
Matches 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HELIX
TURN
TURN
HELIX
TURN
HELIX
TURN
HELIX
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TURN
TURN
HELIX
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
HELIX
TURN
HELIX
                                                                                                                                                                                                                                                                                                                 01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence
15-JUN-2002 (Rel. 41, Last annotati
Glutathione S-transferase Mu 4 (EC
                                                                                                                                      "Comstock K.E., Johnson K.J., Rifenbery I
"Isolation and analysis of the gene and
glutathione S-transferase, GSTM4.";
J. Biol. Chem. 268:16958-16965(1993).
                                                                                                                                                                                                                                   Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; I
Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
NCBI_TaxID=9606;
                                       MEDLINE=93228631; PubMed=8471052;
Zhong S., Spurr N.K., Hayes J.D., Wolf
"Deduced amino acid sequence, gene str
of a novel human class Mu glutathione
Biochem. J. 291:41-50(1993).
                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                           GTM4_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                          HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                         SEQUENCE FROM N.A.
MEDLINE-93352467; PubMed-8349586;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  119
EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYY
                                                                                                                                                                                                                                                                                                          class-mu 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ILGYWNVRGLTHPIRLLLEYTDSSYEEKRYAMGDAPDYDRSQWLNEKFKLGLDFPNLPYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FLARFEGLKKISAYMKSSRYLSTPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FKKRIEAIPQIDKYLKSSKYIAWPL 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KPEFLKTIPEKMKLYSEFLGKRPWFAGDKVTYVDFLAYDILDQYHIFEPKCLDAFPNLKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IDGSRKITQSNAIMRYLARKHHLCGETEEERIRADIVENQVMDNRMQLIMLCYNPDFEKQ 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                               FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     142
154
155
171
178
189
189
191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                           Z
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A
                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70
82
114
115
118
128
128
129
144
1169
1188
1188
1196
1196
1198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42.1%; Score 489.5; DB
44.4%; Pred. No. 1.8e-34
Live 39; Mismatches 7
                                                                                                                                                                                                                                                                                                                                   Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₩;
                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2ACE8D49DA785118 CRC64;
                                                       Wolf C.R.;
e structure and chromosomal location
ione S-transferase, GSTM4.";
                                                                                                                                                                                                                                                                                                                       ion update)
2.5.1.18) (GSTM4-4) (GTS-Mu2)
                                                                                                                                                                                                                                                                                                                                                                                             218
                                                                                                                                                                                  .
.
                                                                                                                                                                   CDNA
                                                                                                                                                                                                                                                                                                                                                                                             ጅ
                                                                                                                                                                  Henner W.D.;
NA for a human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                 Euteleostomi;
                                                                                                                                                                      š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5,
                                                                                                                                                                     class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲,
```

```
Š
                                            B
                                                                    Ş
                                                                                                                                                    Matches
                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Biochemistry 38:16187-16194(1999).

-I- FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECT ACTIVE ON 1-CHLORO-2, 4-DINITROBENZENE.

-I- CATALTIC ACTIVITY: RX + glutathione = HX + H
                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                           use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "An asparagine-phenylalanine substitution accounts differences between hGSTM3-3 and other human class S-transferases."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Comstock K.E., Widersten M., Hao X.Y., Henner W.D., "A comparison of the enzymatic and physicochemical human glutathione transferase M4-4 and three other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Taylor J.B., Oliver J., Sherrington "Structure of human glutathione S-tr Biochem. J. 274:587-593(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                  entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=20056038; PubMed=10587441; Patskovsky Y.V., Patskovska L.N., Listowsky I.;
                                                                                                                                                    SEQUENCE
                                                                                                                                                                                           CONFLICT
                                                                                                                                                                                                                                 PRINTS;
                                                                                                                                                                                                                                                                                                                            Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X-RAY CRYSTALLOGRAPHY (3.3 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       enzymes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=94263230; PubMed=8203914;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHARACTERIZATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=91174774; PubMed=2006920;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Strausberg
Submitted
                                                                                                                                                                                                                                                                                                               MIM; 138333;
                                                                                                                                                                                                                                                                                                                                          PDB; 4GTU; 14-JAN-00.
                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                     nterPro;
                56
                                                                    _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBCELLULAR LOCATION: Cytoplasmic TISSUE SPECIFICITY: EXPRESSED IN A
                                                                                                                                                                                                                                                                                                                                                 M96234; AAA57347.1; -...
M96233; AAA57346.1; -...
S68677; CAA48637.1; -...
BC015513; AAH1$513.1; -...
X56887; CAA40167.1; -...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBUNIT: Homodimer
PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                        MSMTLGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNL
                                                                    MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG - - - - - DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                             PF00043; GST_C; 1.
PF02798; GST_N; 1.
S; PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                           HGNC:4636; GSTM4.
                                                                                                           Similarity
                                                                                                                                                                                                                                                                                   IPR004046;
IPR004045;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          J R.;
(OCT-2001) to
                                                                                                                                                                                                                                                                        IPR003081;
                                                                                                                                                    212
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39-160
                                                                                               Conservative
                                                                                                                                                                                                                   Multigene family;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biophys.
                                                                                                                                                 212 V
25561 MW;
                                                                                                          42.0%;
                                                                                                                                                                                                                                                                    GST_mu.
                                                                                                                                                                                                                                                                                                 GST_Cterm
                                                                                                                                                                                                                                                                                  GST_Nterm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        311:487-495(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the EMBL/GenBank/DDBJ databases.
                                                                                               38;
                                                                                                                                                              I -> M (IN REF. 1;
D -> G (IN REF. 2)
V -> M (IN REF. 2).
                                                                                                          Pred.
                                                                                                                       Score 488.5;
                                                                                                                                                                                                     MSMT
                                                                                                                                                   35E96FA54D566B1E CRC64;
                                                                                                                                                                                                                   3D-structure
                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S-transferase
                                                                                                                                                                                                     -> MPMI (IN REF.
                                                                                                             NO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           æ
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WIDE VARIETY OF TISSUES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     There are no restrictions ong as its content is in
                                                                                        2.2e-34;
78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pemble
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HX + R-S-glutathione.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HIONE TO A WID!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             e S.E.;
                                                                                                                                                                                        AAA57346)
                                                                                                                       Length
                                                                                               Indels
                                                                                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 properties of
human Mu class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ם
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for catalytic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A WIDE NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               M
L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genes.";
                                                                                                                         218;
                                                                                            5
                                                                                            Gaps
                                          60
                                                                                            ۲.
```

```
RESULT
GTM6_MC
                                    20
                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                  Query Match
Best Local S
Matches 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTM6_MOUSE STANDARD 035660; 035661; 15-JUN-2002 (Rel. 41, C. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-2002 (Rel. 41, L. 15-JUN-200
                                                                                                                                                                                                                                                                                                                                                                                                                                                           use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              between the Swiss Institute or translation institute or the European Bloinformatics Institutions as long to home non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Glutathione S-transferase Mu 6 (EC 2.5.1.18)
                                                                                                                                                                            Transferase; Multigene family. SEQUENCE 218 AA; 25628 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSTM6 OR GSTM5
                                                                                                                                                                                                                     PRINTS; PR01267; GSTRNSFRASEM
                                                                                                                                                                                                                                          Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                 InterPro; IPR004046; GST_Cterm
InterPro; IPR004045; GST_Nterm
InterPro; IPR003081; GST_mu.
                                                                                                                                                                                                                                                                                                                                                    MGD; MGI:1309467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Biochem. J. 330:623-626(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN-FVB, 129/Sv,
MEDLINE-98149729; P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Glutathione-S-transferase class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
<u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATALYTIC ÁCTIVITY: RX + glutathione = HX + SUBUNIT: HOMODIMER (BY SIMILARITY).
SUBCELLULAR LOCATION: CYtoplasmic (By simila TISSUE SPECIFICITY: EXPRESSED IN LIVER, STON INTESTINE. NOT EXPRESSED IN SPLEEN, KIDNEY,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BRAIN OR LUNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EXOGENOUS AND ENDOGENOUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SWISS-PROT entry is copyright. It is produced through
MPVTLGYWDIRGLGHAIRLLLEYTETGYEERRYAMGDAPDYDRSQWLNDKFKLGLDFPNL
                                         MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LKDFISRFEGLEKISAYMKSSRFLPKPLYTRVAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LVSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EKLKPEYLEELPTMMQHFSQFLGKRPWFVGDKITFVDFLAYDVLDLHRIFEPNCLDAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PYLIDGAHKITQSNAILCYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                        P09488;
                                                                                                                                                                                                                                                                                                                                                                                                                    AJ000413;
                                                                                       95; Conserv
                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Mouse)
                                                                                                                                                                                                                                                                                                                                                                             1GTU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                             CAA04061.1; -. CAA04060.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A., AND TISSUE SP
Sv, and C57BL/6;
; PubMed=9480867;
                                                                                                                                                                                                                                                                                                                                                      Gstm6
                                                                                                         41.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
                                                                                       36;
                                                                                  Score 486.5;
Pred. No. 3.3e
36; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REDUCED GLUTATHIONE TO A WIDE HYDROPHOBIC ELECTROPHILES (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Craniata; Vertebrata; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SPECIFICITY.

5; TISSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                              324B20CC6C35594B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          M5).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (By similarity).
LIVER, STOMACH AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       There are no rest
                                                                                     1.3e-34;
1es 80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              211
                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                М.Ј.М.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COLON,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             class.
                                                                                                                              Length
                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alferink J.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D SMALL
HEART,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               譠
                                                                                                                                218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TEMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6
                                                                                     5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MUSCLE,
                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
60
                                         55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         큳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                  ۲.
```

```
밁
                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
Ş
                               밁
                                                      δ
                                                                                          Matches
                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-1995 (Rel. 32, Crea
01-NOV-1995 (Rel. 32, Last
15-JUL-1999 (Rel. 38, Last
Glutathione S-transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lee S.H., Lee S.H., Han J.S., Kim Y.S., Kin "Cloning and expression of a cDM, for mu-S-transferase from rabbit liver", Arch. Biochem. Biophys. 318:424-429(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eu
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RABIT
                                                                                                                                                                                                                                                                                                                              modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Extender between the Endropean Bioinformatics Institute. There are no restructed by non-profit institutions as long as its content use by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-95251394;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P46409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTMU_RABIT
                                                                                                                                                                                                                                                                                    EMBL; L23766;
HSSP; P09488;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -
                                                                                                                                                  SEQUENCE
                                                                                                                                                                             Transferase; Multigene family
                                                                                                                                                                                               PRINTS; PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                           efam;
                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           56
 60
                                                           G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FUNCTION: CONJŪGĀTION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.

CATALYTIC ACTIVITY: RX + glutathione = HX + R-S-glutathione.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBCELLULAR LOCATION: Cytoplasmic.
TISSUE SPECIFICITY: WELL EXPRESSED IN RABBIT LIVER, BRAIN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBUNIT: HOMODIMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LKDFMARFEGLRKISAYMKTSRFLPSPVYLKQATWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LVSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EKRKPEFLKGLPDQLKLYSEFLGKQPWFAGDKITFADFLVYDVLDQHRMFEPTCLDAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PYLIDGSHKYTQSNAILRYLGRKHNLCGETEEERIRVDILENRVMDTRIQMGMLCYXADF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
DGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 119
                                             LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI 59
                               LGYWDYRGLALPIRMLLEYTDTSYEEKKYTMGDAPNYDQSKWLSEKFTLGLDFPNLPYLI
                                                                                                                                                                                                            PF00043; GST_C; 1.
PF02798; GST_N; 1.
                                                                                                        Similarity
                                                                                                                                                                                                                                     IPR004046; GST_Cterm.
IPR004045; GST_Nterm.
IPR003081; GST_mu.
                                                                                                                                                 217 AA;
                                                                                        Conservative
                                                                                                                                                                                                                                                                                        1GTU
                                                                                                                                                                                                                                                                                                  AAA69665.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32, Created)
32, Last sequence update)
38, Last annotation update)
seferase Mu 1 (EC 2.5.1.18) (GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=7733673;
                                                                                                                                                  25286 MW;
                                                                                       41.7%; Score 485.5; DB 1
44.6%; Pred. No. 3.9e-34;
Live 37; Mismatches 76
                                                                                                                                                                  BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kim Y.S., Koh
                                                                                                                                                    785EA932C543ECB2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mu-class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          216
                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
                                                                                          76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .K.;
s glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        준
                                                                                                                     Length
                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IJ
                                                                                                                                                                                                                                                                                                                                                                                         restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GST class-
                                                                                                                                                                                                                                                                                                                                                                                                         EMBL outstation
                                                                                                                      217;
                                                                                                                                                                                                                                                                                                                                                                                                            MBL outstation -
                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                               63
                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                           õ
```

Pfam; PF00043; GST_C; 1. Pfam; PF02798; GST_N; 1.

PRINTS;

PR01267; GSTRNSFRASEM. rase; Multigene family;

3D-structure.

InterPro; IPR004046; InterPro; IPR004045; InterPro; IPR003081;

GST_Cterm. GST_Nterm. GST_mu.

MIM;

Genew;

w; HGNC:4634; GSTM2 138380; ~. 2GTU; 02-MAR-99. 3GTU; 29-JUL-99.

```
GTM2_HUMAN
ID GTM2_HUMAN
ID GTM2_HUMAN
ID GTM2_HUMAN
ID 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 01-AI
DT 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-APR-1993
01-APR-1993
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrața; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Crystal structure of human class mu glutathione transferase GSTM Effects of lattice packing on conformational heterogeneity.";

J. Mol. Biol. 238:815-832(1994).

-i- EUNCTION: CONJUGATION OF REDUCED GLUTATHIONE TO A WIDE NUMBER OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELECTROPHILES.

-i- CATALYTIC ACTIVITY: RX + glutathione - HX + R-S-glutathione.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE=91239584; PubMed=2034681;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GSTM2 OR GST4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-APR-1993 (Rel. 25, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Glutathione S-transferase Mu 2 (EC 2.5.1.18) (GSTM2-2) (GST class-mu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTM2_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                 PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Vorachek W.R., Pearson W.R., Rule G.S.;
"Cloning, expression, and characterization of a class-mu glutathione transferase from human muscle, the product of the GST4 locus.";
Proc. Natl. Acad. Sci. U.S.A. 88:4443-4447(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P28161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=94238693; PubMed=8182750;
                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Raghunathan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Penington C.J., Rule G.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             K-RAY CRYSTALLOGRAPHY (1.85 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUBCELLULAR LOCATION: Cytoplasmic.
TISSUE SPECIFICITY: THIS IS A MUSCLE ISOZYME.
SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBUNIT: HOMODIMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PEYLKGLPEKLQLYSQFLGSLPWFAGDKITFADFLVYDVLDQNRIFVPGCLDAFPNLKDF 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DGTHKLTQSNAILRYLARKHGLCGETEEERIRVDILENQLMDNRFQLVNVCYSPDFEKLK 123
                                                                                                                                                                                                                                                                                                                     1HNA; 31-JAN-94.
1HNB; 31-JAN-94.
1HNC; 31-JAN-94.
                                                                                                                                                                                                                                                                                                                                                                                                              , M63509; AAA60963.1;
A39375; A39375.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HVRFEGLPKISAYMKSSRFIRVPVFLKKATWTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KKRIEAIPQIDKYLKSSKYIAWPLQGWQATFGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSF 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Rel. 25, Rel. 25, Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             s.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chandross R.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kretsinger R.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transferase GSTM2-2.
erogeneity.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Allison T.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
```

```
GTMU_CAVPO
ID GTMU_CA
AC P16413
DT 01-AUG
DT 01-NOV
DE Glutat
GN GSTM1.
OS Cavia
OC Eukary
OC Mammal
ON NCBI_T
RN [1]
                                                                                                                         õ
                                                                                                                                                   δÃ
                                                                                                                                                                  밁
                                                                                                                                                                              δÃ
                                                                                                                                                                                                         Qy
                                                                                         RESULT
                                                                                                             밁
                                                                                                                                        밁
                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                               Best Local
                                                                                                                                                                                                                        Matches
                                              P16413;
01-AUG-1990
01-AUG-1990
01-NOV-1995
            GSTM1.
Cavia porcellus (Guinea
Eukaryota; Metazoa; Chor
Mammalia; Eutheria; Rode
                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
HELIX
TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                        STRAND
HELIX
                                         Glutathione
                                                                           GTMU_CAVPO
                                                                                                                                                                                                                                                                                                                                                       TURN
HELIX
                                                                                                                                                                                                                                                                                                                                                                    HELIX
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
STRAND
                                                                                                                                                                                                                                                                      HELIX
HELIX
                                                                                                                                                                                                                                                                                          STRAND
HELIX
                                                                                                                                                                                                                                                                                                       STRAND
TURN
                                                                                                                                                                                                                                                                                                                      TURN
                                                                                                                                                                                                                                                                                                                                   TURN
                                                                                                                                                                                                                                                                                                                                                                                  TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INIT_MET
STRAND
                                                                                                                                                                                                                                                                                                                                          HELIX
                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
                                                                                                           184 ISRFEGLEKISAYMKSSRFLPRPVFTKMAVWG
                                                                                                                           180
                                                                                                                                        124
                                                                                                                                                     120
                                                                                                                                                                  64
                                                                                                                                                                               60
                                                                                                                                                                                             4
                                                                                                                                                                                                          v
                                                                                                                                     PEYLQALPEMLKLYSQFLGKQPWFLGDKITFVDFIAYDVLERNQVFEPSCLDAFPNLKDF
                                                                                                                                                                                           LGYWNIRGLAHSIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNLPYLI
                                                                                                                                                                                                       LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI
                                                                                                                         KKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                   VDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSF
                                                                                                                                                                         DGDVKLTQSMAIIRYTADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK
                                                                                                                                                                 DGTHKITQSNAILRYIARKHNLCGESEKEQIREDILENQFMDSRMQLAKLCYDPDFEKLK
                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                   214
217
                                      (Rel. 15, Created)
(Rel. 15, Last sequence update)
(Rel. 32, Last annotation update)
S-transferase B (EC 2.5.1.18) (GS
                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                         ξ
                                                                          STANDARD;
            inea pig).
Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                  25613 MW;
                                                                                                                                                                                                                              44.8%;
                                                                                                                                                                                                                                      41.68;
                                                                                                                                                                                                                        35
'
                                                                                                                                                                                                                     Score 484.5; Db ., Pred. No. 4.8e-34; 77;
            Hystricognathi;
                    Craniata; Vertebrata;
                                                                                                                                                                                                                                                  25603A909482CA39 CRC64;
                                                                          217
                                                                                                                        211
                                                                                                            215
                                                                          B
                                        (GST
            Caviidae;
                                        8)
                                        (GST
                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                    Length
                   Euteleostomi;
                                       class-mu).
                                                                                                                                                                                                                      5
                                                                                                                                                                                                                      Gaps
                                                                                                                                      183
                                                                                                                                                   179
                                                                                                                                                                              119
                                                                                                                                                                                           63
                                                                                                                                                                 123
                                                                                                                                                                                                        59
                                                                                                                                                                                                                      1;
```

```
뫄
                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 15
GTMU_CRILO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                             GTMU_CRILO
Q00285;
Q1-JUL-1993
Q1-JUL-1993
Q1-JUL-1993
Q1-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -!- CATALYTIC A
     EUR. J. BIOCHEM. 193:19-24(1990).

-I- FUNCTION: CONJUGATION OF REDUCED GLUTATHIONE OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC ELEC-I- CATALYTIC ACTIVITY: RX + glutathione - HX + I- SUBUNIT: HOMODIMER.

-I- SUBURIT: HOMODIMER.

-I- SUBCELLULAR LOCATION: Cytoplasmic.
                                                                                                   MEDLINE-91031445; PubMed-2226437; de Saint Vincent B.R., Hyrien O., Debatisse M., Buttin G.; de Saint Vincent B.R., Hyrien O., Debatisse M., Buttin G.; "Coamplification of mu class glutathione S-transferase genes and adenylate deaminase gene in coformycin-resistant Chinese hamster fibroblasts.";
                                                                                                                                                                                                                          Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                 NCBI_TaxID-10030;
                                                                                                                                                                                                                Cricetulus
                                                                                                                                                                                                                                                                     Glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SUMCELLULAR LOCATION: Cytoplasmic.
-!- SIMILARITY: BELONGS TO THE GST SUPERFAMILY. MU FAMILY.
PIR, JX0095, JX0095.
HSSP; P04905; ZGST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kamei K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE.
TISSUE=Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
InterPro; IPR003081; GST_mu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          liver.";
J. Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-90236961; PubMed-2332413;
Kamei K., Oshino R., Hara S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR004046;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Amino acid sequence of glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                            124
                                                                                                                                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ഗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUBUNIT: HOMODIMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OF EXOGENOUS AND ENDOGENOUS HYDROPHOBIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                     KKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DGTHKLTQSNAILRYIARKHNLCGVTEEETIRMDILENQVMDIRMQLIMLCYSPDFEQKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLK 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LGYWNIRGLTHPIRLILEYTNSGYEEKRYNMGDAPDYDRSQWLNEKFKLGLDFPNLPYLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LGYWKIKGLYQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNLPYYI
                                                                                                                                                                                                                                                                                                                                                                                                      ISRFEGLEKISSYMKSSRFLPKPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AEFLEGIPDKMKLFSQFLGKLPWFAGNKLTYVDFLAYDVLDQYRMLEPKCLEAFPNLKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     l Similarity
92; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Multigene family
217 AA; 25719 MW;
                                                                                                                                                                                                                                                               (Rel. 26, Created)
(Rel. 26, Last sequence update)
(Rel. 37, Last annotation update)
S-transferase Y1 (EC 2.5.1.18) (C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       107:111-117(1990).
N: CONJUGATION OF REDUCED GLUTATHIONE TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACTIVITY: RX + glutathione
                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 481.5;
Pred. No. 8.
                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                               203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         D29F7951D4E9365E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S-transferase b
                                                                           GLUTATHIONE TO
                                                                                                                                                                                                                                                                                                                                    217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5; DB 1;
8.6e-34;
hes 72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                 (Chain 3) (GST class-mu).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X
                                                              ELECTROPHILES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ELECTROPHILES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  +
           ğ
                                              R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R-S-glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
           FAMILY
                                                                          A WIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A WIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  guinea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pig
                                                                                                                             an
                                                                                                                                                                                                                                                                                                                                                                                                                                                          183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲,
```

```
ş
                                                                                                    δÃ
                                                                                                                                            밁
                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                   Ş
밁
                                                                        밁
                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                       Query Match 40.9%; Score 476.5; DB 1; Length 217; Best Local Similarity 43.4%; Pred. No. 2.3e-33; Matches 89; Conservative 37; Mismatches 74; Indels 5
                                                                                                                                                                                                                                                                                                                                                               Transferase; Multigene family.
INIT_MET 0 0 BY SIMILARITY.
SEQUENCE 217 AA; 25688 MW; 34D8A8FBDD8627C0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; X57489; CAA40726.1; -. PIR; S13202; S13202. HSSP; P04905; 2GST. InterPro; IPR004046; GST_Cte
                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPRO04046; GST_Cterm.
InterPro; IPRO04045; GST_Nterm.
InterPro; IPRO03081; GST_mu.
183 FLARFEGLKKISAYMKTSRFLRRPI 207
                  179 FKKRIEAIPQIDKYLKSSKYIAWPL 203
                                                                        123
                                                                                                119 KVDFLSKLPEMIKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVS 178
                                                                                                                                              63
                                                                                                                                                                                59
                                                                                                                                                                                                                                     4 ILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFFNLPYY 58
                                                                                                                                          KPEFLKTIPEKMKMYSEFLGKRPWFAGDKVTLCGFLAYDVLDQYQMFEPKCLDPFPNLKD 182
                                                                                                                                                                                                                  ILGYWNVRGLTNPIRLLLEYTDSSYEEKKYTMGDAPDSDRSQWLNEKFKLGLDFPNLPYL 62
                                                                                                                                                                                                                                                                                                                                                           217 AA;
                                                                                                                                                                                                                                                                                           5;
                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                           1:
```

Search completed: May 20, 2003, 11:34:59 Job time: 5.14571 secs

```
Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
  520.5
514.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
508.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              May 20, 2003, 10:12:24 ; Search time 15.0413 Seconds (without alignments) 2986.328 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSPILGYWKIKGLVQPTRLL....IAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-081-408-5
1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9:
10:
11:
12:
13:
14:
16:
16:
  88.8
602.4
444.2
444.2
441.7
441.5
441.5
441.5
49.9
9.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SPTREMBL_21:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sp_archea:*
sp_bacteria:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sp_organelle:*
sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sp_mammal:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sp_fung1:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sp_invertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sp_rodent:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sp_plant:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB
                                                                                                                                                                                                                                                                                                               Q9XYL9
Q9NOV4
Q9OWM9
Q9BEB0
Q9TSM4
Q91Y83
1 Q9WU21
Q27653
Q16058
Q9DD25
                                                                                                                                                                                                                                                        Q8R516
O97117
                                                                                                                                                                                                                                                                                                                                                                                                Q94745
Q25595
                                                                                                                                                                                                                              Q9TSM5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               671580
                                              Q94745 schistosoma
Q25595 clonorchis
Q3xyl9 fasciola gi
Q9nOv4 bos taurus
Q9owm9 xenopus lae
Q8r516 mus musculu
Q97117 boophilus m
Q9tsm5 macaca fasc
Q9beb0 macaca fusc
Q9tsm4 macaca fusc
Q9tsm4 macaca fusc
Q9tsm4 rattus norv
Q27653 echinococcu
Q1458 echinococcu
Q16058 echinococcu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
```

W 4 IV	2109		0 1 2 2 4		119
			54 24 24 24	66400	4444 4444 4444 4444 4444 4440 55 55 55 55 55 55 55 55 55 55 55 55 55
000	00007	77.89	00111	225.00	39.0 38.5 38.2 38.2 38.2 37.8 37.8
208 223 222	222 210 198 221	216 82 221 221	208 210 210 180	181 220 125 208 208	195 195 188 188
თთთ	11 5 5 6	11 ⁴ 13 °			61114
P91505 Q29057 Q9XS30	Q9N2J6 Q9N4X8 Q8T1J9 1 P70686	Q9W647 Q9UE37 Q9DCU1 Q9DCU1 Q9JLX3	Q27711 O00460 Q15690 Q9NHB2 Q9TTYB	Q8TC98 Q8TC98 Q8T7E4 Q29583 Q9DDU5 Q9DDU5	Q96HA3 Q9BEA9 Q05465 Q8WWE1 Q9D5J8 Q9Z1B2 Q9Z1B2
P9150 Q2905 Q9xs3	Q9n2 Q9n4: Q8t1 p70	760 760 9160 760	Q277: 0004: Q156: Q9nh:	Q8tc98 R Q8tc98 R Q8t7e4 R Q29583 s Q29ddu5 Q9ddu5	Q96ha3 Q9bea9 Q05465 Q8wwe15 Q9d5j8 Q9z1b1 Q9mzb4

ALIGNMENTS

					_							_		_			_									-
,	Db	Qy	Qu Be Ma	SQ	X X	跊	DR DR	g PR	DR E	Z Z	RT	RA	RX	RC	R A	o X	8	8	SO	DE	D.	3 5	AC.	ID	Q947	DOUG
	h hapilgywkikglyoptrllleylgeeyeerlyernegdawrnekfklglefpnlpyyid	1	Query Match 88.8%; Score 1034; DB 5; Length 218; Best Local Similarity 89.0%; Pred. No. 1.1e-81; Matches 194; Conservative 11; Mismatches 13; Indels		W Transferase			HSSP; PO85							P SECUENCE FROM N.A.	X NCBI_TaxID=38744;	Schistosomatoidea; Schistosomatidae;			26kD glutathione S-tran	01-JUN-2002	Ol-FEB-1997 (Tremburel O)	Q94745;	D Q94745 PRELIMINARY; PRT; 218 AA.	Q94745	
	FPNLPYYTD 60	FPNLPYYID 60	218; 0; Gaps							997)	sferase gene							Strige1dida;								

```
RESULT
Q9XYL9
ID Q5
AC Q5
DT Q5
DT 00
DT 0
                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
Q25595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SO DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESERVA DE RESER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; L47992; AAB46369.3; -. HSSP; P31670; IPHE.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
  Q9XYL9;
Q9XYL9;
01-NOV-1999
01-NOV-1999
01-JUN-2002
Glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
Hong S.-J., Lee D.-H.;
Hong and over expression
Clonorchis sinensis.";
Thesis (1996), Parasitology,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence up
01-JUN-2002 (TrEMBLrel. 21, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transferase.
SEQUENCE 218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hong S.-J.;
Submitted (APR-1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Platyhelminthes; Trematoda; Digenea; Opisthorchiida; Opisthorchiida; Opisthorchiidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q25595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Putative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=79923;
                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                          w
                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                          19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   lonorchis sinensis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    onorchis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     سر
                                                                                                                                                                                                                                                                                                                                    DFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HRIEALPNIKAFMESDRFIKWPLNGWSAYFGGGDAPPK
                                                                                                                                                                                                                                                                  KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK 218
                                                                                                                                                                                                                                                                                                                                                                                                                    GDVKLTOSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KRIEAIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPPK
                                                                                                                                                                                                                                                                                                           PYLOOLPSTLRMWSQFLGNNSYLHGSTPTHLDFMFYEALDVIRYLDPTSVEAFPNLMQFI
                                                                                                                                                                                                                                                                                                                                                                                               GNFSLTQSLAILRYIADKHNMIGNTPVERAKISMIEGGLVDLRAGVSRIAYQETFEQLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GDVKLTQSMAIIRYIADKHNMLGGSGKERAEITMLEGAVSDIRSGVSRIAYNKDFETLKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tch 62.4%; al Similarity 59.2%; 129; Conservative 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     glutathione transferase.
    9 (TrEMBLrel. 12, 9 (TrEMBLrel. 12, 2) (TrEMBLrel. 21, 2) e S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25038 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38;
                      Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 726; DB 5; I
Pred. No. 4.8e-55;
08; Mismatches 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chung-Ang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           O
F
                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7CB17C7B837A0B7C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26 kDa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218
                                                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                University
                                                                                                               ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                       218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      218
                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              College of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S-transferase from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Medicine,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
```

```
RESULT
Q9NOV4
SOUR REPRESENTATION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Sim
Matches 125;
                                        InterPro; IPRO04046; GST_Cterm.
InterPro; IPRO03081; GST_mu.
InterPro; IPRO04045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSFRASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9NOV4;
Q9NOV4;
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-OCT-2000 (TrEMBLrel. 15, Created 01-OCT-2000 (TrEMBLrel. 15, Last se 01-JUN-2002 (TrEMBLrel. 21, Last an Class mu glutathione S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GSTM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pransferase.
Transferase.
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Grams S.V., Grams R., Sobhon P., Viyanant V., "Molecular cloning of expressed antigens from Submitted (DEC-1998) to the EMBL/GenBank/DDBJ EMBL; AF112567; AAD23997.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fasciola gigantica.
Eukaryota; Metazoa; Platyhelminthes; Trematoda; Digenea;
Echinostomida; Echinostomata; Fascioloidea; Fasciolidae;
                                                                                                                                                                                                             Jimenez-Asensio J.V., Garland D.;
"A Lens glutathione S-transferase,
antioxidant activity.";
Submitted (MAR-2000) to the EMBL/G
EMBL; AF249588; AAF64308.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyia; Ruminantia; Pecora; Bovoidea Bovidae; Bos. NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR004046; GST_Cterm.
InterPro; IPR004046; GST_Nterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN-THAILAND;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=46835;
                                                                                                                                                                                         HSSP; P09488; 1GTU
                                                                                                                                                                                                                                                                                                                                      TISSUE-LENS;
                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         taurus (Bovine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEFPNLPYYIDGDVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DLPKIKAYMESEKFIKWPLNSWTASFGGGDAAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AIPQIDKYLKSSKYIAWPLQGWQATFGGGDHPP 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ELPKTLKMWSDFLGDRQYLTGSSVSHVDFMVYEALDCIRYLAPQCLNDFBKLKEFKSRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPKLVSFKKRIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDFETLKVDFLS 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LGYWKIRGLQQPVRLLLEYLDEEYEEHLYGRODREKWLGDKFNMGLDLPNLPYYIDDKCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity 58.7
25; Conservative
218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25337 MW;
25635 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60.7%;
58.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Last sequence up
                                                                                                                                                                                                                                         EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 707; DB 5;
Pred. No. 2.1e-53;
6; Mismatches 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E9423D75C3F2EEAF CRC64;
3D02EA0F43C07B0A CRC64;
                                                                                                                                                                                                                                                                                      class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    217
                                                                                                                                                                                                                                                                                         mu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ζ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                         with thiol-specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Upatham E
n Fasciola o
J databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52;
                                                                                                                                                                                                                                         databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E.S.;
a gigantica.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fasciola.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64
```

Match

DB 6;

```
RESULT ORDER OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF STANDARD OF ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
RESULT
Q8R516
                                                                                                                                         δÃ
                                                                                                                                                                                               밁
                                                                                                                                                                                                                                   ρy
                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멂
                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              O90WM9
O90WM9
O90WM9;
O1-DEC-2001 (TrEMBLrel. 19, Cre
r 01-DEC-2001 (TrEMBLrel. 19, La:
r 01-JUN-2002 (TrEMBLrel. 21, La:
T 01-JUN-2002 (TrEMBLrel. 21, La:
T 01-JUN-2002 (TrEMBLrel. 21, La:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 De Luca A., Favaloro B., Sacchetta P., Angelucci S., Di Ilio "Molecular cloning, expression and site-directed mutagenesis liver Mu-class glutathione S-transferase from Xenopus laevis. Submitted (OCT-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AJ416998; CAD01094.1; -.
InterPro; IPR0004046; GST_Cterm.
InterPro; IPR0004045; GST_Cterm.
Pfam; PF00043; GST_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; l
Amphibla; Batrachia; Anura; Mesobatrachia; Pipoidea;
Xenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                   116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                  181
                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         56
                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٣
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                  μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LKDFISRFEGLKKISAYMKSSRFLPGPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LVSFKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MPMILGYWDIRGLAHAIRLLLEYTDTNYEERQYSVGDAPDYDRSQWLNEKFKLGLDFPNL 60
                                                                                                                                                                                                                                                                                                                                                                                                                           PYLIDGTHKLTQSNAILRYIARKHNLCGETEEEMIRVDILENQVMDVRLAMARICYSPDF
                                                                                                                                                                                                                                                                                               PYLVDGDVKLTQSNAILRYIARKHGLCGESEKEKNYVDLIENQAMDFRWGLVVIAYSPQF
                                                                                                                                                                                                                                                                                                                           PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                               LQAFLTRFEALPAIDAYVKSSRFMKTPINNRMASWG
                                                                                                                                              LVSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                               ETLKGPYLEKLPIALKKFSCFLGDRSWFAGDKITYVDFVMYDVLDQHRILDPTCLQNFKN
                                                                                                                                                                                                                                           ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK
                                                                                                                                                                                                                                                                                                                                                                                               MVVILGYWDIRGLAHSIRLLLEYTGTQYEEKLYVTGDAPNYDKSQWLNEKEKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   219 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   219
25359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44.28;
47.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MW;

    Last sequence update
    Last annotation updat
    (EC 2.5.1.18).

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 520.5; DB
Pred. No. 2.9e-37
16; Mismatches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 514.5; DB 13;
pred. No. 9.8e-37;
4; Mismatches 74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 XLGSTM1.
; 5F7FF8AEDDA82DFD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                               216
                                                                                                                                              211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Euteleostomi;
; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                175
                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ۲
```

```
Length
                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOUR REAL STREET
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 97
Query Match
                                                                                                                                                                                                                                                                                   O97117 PRELIMINARY;
O97117;
O1-MAY-1999 (TrEMBLrel. 10,
O1-MAY-1999 (TrEMBLrel. 21,
O1-JUN-2002 (TrEMBLrel. 21,
Glutathione S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q8R516; PRELIMINARY; PRT; 218 AA. Q8R516; Q8R516; O1-JUN-2002 (TrEMBLrel. 21, Created) O1-JUN-2002 (TrEMBLrel. 21, Last sequence update) O1-JUN-2002 (TrEMBLrel. 21, Last annotation update) Glutathione transferase GSTM7-7 (EC 2.5.1.18). Mus musculus (Mouse). Musculus (Mouse). Eukaryota; Metazoa; Chordata; Craniata; Vertebrat; Manmalia; Eutheria; Rodentia; Sciurognathi; Muridinary
                                                                                                          gene from the tick, Boophilus microplus (Acari: Ixodidae).";
Insect Biochem. Mol. Biol. 29:737-743(1999).
HSSP; P20136; 185U.
InterPro; IBBOACC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Guo J., Zimniak L., Zimniak P., Orchard J.L., Singh tCloning and expression of a novel mu class murine g transferase isoenzyme.", Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databasembl; AF464943; AAL76248.1; ...
                                                         InterPro; IPR004046; GST_Cterm.
InterPro; IPR003081; GST_mu.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                               Boophilus microplus (Cattle tick).
Eukaryota; Metazoa; Arthropoda; Chelicerata; Arachnida;
Parasitiformes; Ixodida; Ixodidae; Boophilus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Transferase.
SEQUENCE 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID-10090;
                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                   NCBI_TaxID=6941;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      116
                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PYLIDGSHKITQSNAILRYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDF
                                                                                                                                                                                                                                                                                                                                                                                                              LKDFVARFEVLKRISAYMKTSRFLRTPLYTKVATWG
                                                                                                                                                                                                                                                                                                                                                                                                                                     LVSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                               PR01267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                        ΑA;
                                                GSTRNSFRASEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25519 MW;
                        25604 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          43.7%; Score 508.5;
44.9%; Pred. No. 3.2
                                                                                                                                                                                                                                                                                                10,
10,
21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40;
                                                                                                                                                                                                                                                                                                Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ databases
 Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Euteleosto
Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81F15DBB46118102 CRC64;
                        F276ACE2D8259174 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
 508.5;
                                                                                                                                                                                                                                                                                                                                                   223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ation update)
5.1.18).
                                                                                                                                                                                                                                                                                                                                                  ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2e-36
                                                                                                                                                                                                                                                                                                                                                                                                              216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 11; Length
 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74; Indels
 5.
  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         h S.V.;
glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Euteleostomi;
  223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :
```

```
RESULT
Q9TSM5
   밁
                                   δÃ
                                                                               В
                                                                                                             Ş
                                                                                                                                                        밁
                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                  몽
                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                         AC OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CONTRACTOR RANGE OCC CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                               Query
Best I
                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity Matches 102; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Macaca tascicularis (Crab eating macaque) (Cynomolgus monk
Eukaryota; Metazoa; Chordata; Craniata; Verrebrata; Eutele
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
Cercopithecinae; Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              O9TSM5;
01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
61utathione S-transferase mu-class subunit M1 (EC 2
                                                                                                                                                                                                                                                                                                                                                                           Transferase.
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR004046; GST_Cterm.
InterPro; IPR003081; GST_mu.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF00798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AF200709;
HSSP; P09488; 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    conjugating activity liver.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                           PRINTS; PR01267; GSTRNSFRASEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Toxicol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20330602; PubMed=10869451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-LIVER;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID-9541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9TSM5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wang C., Bammler T.K., Guo Y., Kelly E.J., Eaton D.L., Mu-class GSTs are responsible for aflatoxin B(1)-8, 9-epoxide-conjugating activity in the nonhuman primate macaca fascicularis
   181
                                                                               121
                                                                                                                     116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                          61
                                                                                                                                                                                            56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56
                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               مبو
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LKAFVDRIEALPHVAAYLKSDKCIKWPLNGDMASFG
   LKDFISHFEGLEKISAYMKSSRFLPKPLYTRVAVWG
                                                                                                                                                                                                                                                    MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                         EKLKPEYLEGLPTMMQHFSQFLGKRPWFVGDKITFVDFLAYDVLDLHRIFEPKCLDAFPN 180
                                                                                                             ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                   PYLIDGTHKITQSNAILRYIARKHNLCGETEEEKIRVDILENQAMDVSNQLARVCYSPDF
                                                                                                                                                                        PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                              MPMTLGYWDIRGLAHAIRLLLEYTDSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LVSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EKLKGDYLKNLPASLKAFSDYLGTHKFFAGDNLTYVDFIAYEMLAQHLIFAPDCLKDFAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PYYIDGDVKLTQSMAILRYLARKHGLEGKTEAEKQRVDVSEQQFADFRMNWVRLCYNPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MAPVLGYWDIRGLAQPIRLLLAHVDAKVDDKRYTCGPPPDFDRSSWLNEKTKLGLEFPNL
                                                                                                                                                                                                                                                                                                              94;
                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sci.
                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            56:26-36(2000).
9; AAF08539.1; -.
                                                                                                                                                                                                                                                                                                                                                                                       25577 MW;
                                                                                                                                                                                                                                                                                                                           41.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     47.28;
                                                                                                                                                                                                                                                                                                            37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31;
                                                                                                                                                                                                                                                                                                          Score 485.5; DB 6
Pred. No. 3.1e-34;
7; Mismatches 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 3.3e-36;
1; Mismatches 78
                                                                                                                                                                                                                                                                                                                                                                                     EE5B4D80F60C95EB CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Cynomolgus monxey).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           216
                                     211
   216
                                                                                                                                                                                                                                                                                                                                             DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     78;
                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .5.1.18).
                                                                                                                                                                                                                                                                                                        5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.
                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         55
                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ۲,
RRR RNX OOC DETENTED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
```

```
RESULT 10
Q9TSM4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Beuckmann C.T., Fujimori K., Urade Y.

"Macaca fuscata glutathione transfera
Submitted (APR-1999) to the EMBL/GenB
EMBL, AB025799; BAB40442.1; -.

HSSP; P28161; IHNA.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR003081; GST_mu.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.

Pfam; PF00043; GST_C; 1.
                                                                                                                                                                                                                                                                       01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                         Q9TSM4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9BEB0;
Q9BEB0;
01-JUN-2001
01-JUN-2001
MEDILINE-20330602; PubMed=10869451;
Wang C., Bammler T.K., Guo Y., Kelly E.J., Eaton D.L.;
"Mu-class GSTs are responsible for aflatoxin B(1)-8, 9-epoxide-
confugating activity in the nonhuman primate macaca fascicularis
                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                                                                                                                                                                            Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey)
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleost
                                                                                                                                                                                                                                                      Glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Transferase.
SEQUENCE 221 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates; Cercopithecinae; Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JUN-2001 (TrEMBLrel. 17, 01-JUN-2001 (TrEMBLrel. 17, 01-JUN-2002 (TrEMBLrel. 21, Glutathione transferase M2.
                                                                                    TISSUE=LIVER;
                                                                                                                                        NCBI_TaxID=9541;
                                                                                                                                                             Cercopithecinae;
                                                                                                                                                                                                                                      GSTM2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRINTS; PR01267; GSTRNSFRASEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=9542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Macaca fuscata (Japanese macaque).
                                                                                                                                                                                                                                                                                                                                                                                                                                           183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MSPI-LGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                         NLKDFISRFEGLEKISAYMKSSRFLPRPVFTKMAVWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KLVSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LPYYIDGDVKLTQSMAIIRYIADKHNMIGGSPKERAEISMLEGAVLDIRYGVSRIAYSKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MMPMTLGYWNIRGLAHSIRLLLEYTGSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEKLKPEYLEGLPEMLKLYSQFLGKQPWFLGDKITFVDFIAYDVLERNQVFEPSCLDAFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LPYLIDGTHKITQSNAILRY IARKHNLCGETEKEKIREDILENQLMDNRMQLARLCYDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TrEMBLrel.) (TrEMBLrel.)
                                                                                                                                                                                                                                                  (TrEMBLrel. 13, Created)
(TrEMBLrel. 13, Last sequence update)
(TrEMBLrel. 21, Last annotation update)
S-transferase mu-class subunit M2 (EC 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                             Macaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26068 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transferase M2.";
EMBL/GenBank/DDBJ
-.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 483; DB 6; 1
Pred. No. 5.3e-34;
6; Mismatches 78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Craniata; Vertebrata;
Catarrhini; Cercopith
                                                                                                                                                                           Catarrhini;
                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01F22BAC6DA57FE9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence update)
                                                                                                                                                                                                                                                                                                                                                218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             221
                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Å
                                                                                                                                                                           Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                                                                                                                                                                                    2.5.1.18).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          221;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54
```

```
Q91Y83
ID 1Y83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SQ SQ
ş
                                                 밁
                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 96
                                                                                                                                                Query Match
Best Local S
Matches 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR004046; GST_Cterm.
InterPro; IPR003081; GST_mu.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
PRINTS; PR01267; GSTRNSERASEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      O91Y83 PRELIMINARY; PRT; 218 AA. 091Y83; 01-DEC-2001 (TrEMBLrel. 19, Created) 01-DEC-2001 (TrEMBLrel. 19, Last sequence update) 01-JUN-2002 (TrEMBLrel. 21, Last annotation update) 61utathione S-transferase subunit gYc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transferase,
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 liver.";
Toxicol.
                                                                                                                                                                                                                                                                                    Arch. Biochem. Biophys. 354:188-196(1998).
EMBL, AB000488; BABA7185.1; -.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF00043; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cavia porcellus (Guinea pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eut
Mammalia; Eutheria; Rodentia; Hystricognathi; Cavildae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AF200710; AAF08540.1; HSSP; P28161; 1HNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=10141;
[1]
                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                          Transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                  transferases.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       with antibodies to both
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hiratsuka A., Ogura K., Fujioka H., Sakamoto Y., Okuda H., Wada K.,
Tanaka T., Nishiyama T., Watabe T.;
"Guinea pig liver Mu-class glutathione S-transferase Ml-2 cross-reacts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-HARTLEY; TISSUE-LIVER; MEDLINE-98297271; PubMed-9633615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                      Local Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56
56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \boldsymbol{\mu}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ocal Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LKDFISRFEGLEKISAYMKSSRFLPRPVFTKMAVWG 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MPMTLGYWNIRGLAHSIRLLLEYTGSSYEEKKYTMGDAPDYDRSQWLNEKFKLGLDFPNL
                                                                                MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LYSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EKLKPEYLEGLPEMLKLYSQFLGKQPWFLGDKITFVDFIAYDVLERNQVFEPSCLDAFPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PYLIDGTHKITQSNAILRY IARKHNLCGETEKEKIREDILENQLMDNRMQLARLCYDPDF
PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                 MPMTLGYWDIRGLTHAIRLLLEYTDTSYEEKRYTMGDAPDFDTSQWLNEKFKLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96;
                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sci.
                                                                                                                                                                                                                                                   218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                              41.3%; Score 480.5; DB 1 larity 44.7%; Pred. No. 8.5e-34; Conservative 34; Mismatches 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56:26-36(2000).
                                                                                                                                                                                                                                                ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25708 MW; F2E509C3949F9051 CRC64;
                                                                                                                                                                                                                                                25695 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     41.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rat Mu- and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; Score 482.5; DB 6
; Pred. No. 5.7e-34;
35; Mismatches 80
                                                                                                                                                                                                                                                   D2B9E31F9FEFA1E8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          theta-class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 6;
                                                                                                                                                                                               DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80; Indels
                                                                                                                                                   76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                   Indels
                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Euteleostomi;
                                                                                                                                                                                                    218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             55
                                                   60
                                                                                                  55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۲.
                                                                                                                                                   ۲,
```

RESULT 13 Q27653 ID Q2765 AC Q2765

Q27653 Q27653;

PRELIMINARY;

PRT;

219

B

```
RESULT OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                               8
                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                  ρy
                                           δ
                                                                                                   Вb
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                      δÃ
밁
                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09WU21;
01-NOV-1999
01-NOV-1999
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-SPRAGUE-DAWLEY;

MEDLINE-88398790; PubMed=3403534;

Lai H.C., Qian B., Grove G., Tu C.P.;

Teene expression of rat glutathione S-transferases.

conversion in the evolution of the Yb multigene fami

J. Biol. Chem. 263:11389-11395(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-NOV-1999 (TYEMBLrel. 12, Created)
01-NOV-1999 (TYEMBLrel. 12, Last sequence update)
01-JUN-2002 (TYEMBLrel. 21, Last annotation update)
Glutathione S-transferase Yb4 (EC 2.5.1.18).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; ...
Transferase.
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9WU21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qian B., Tu C.P.;
"The Rat Glutathione S-Transferase Yb4 genomic clone sequence Submitted (NOV-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP; P04905; 2GST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; AF106661; AAD22630.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-SPRAGUE-DAWLEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
181
                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                           56
                                                                                                                                                                                                                                                                                                                                                                 -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LVSFKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PYLIDGTHKLTQSNAILRYIARKHNLCGETEEERIRMDILENQVMDFRIQLGMVCYSPDF
                                                                                                                              ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK 175
                                                                                                                                                                                                                                                                                                                                              MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEG-----DKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LKEFISRFEGLKKISAYMKSSRFLPGPM
                                             LVSFKKRIEAIPQIDKYLKSSKYIAWPL
                                                                                                                                                                                                                                  PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EKKKPEFLEGLPDKMKLFSQFLGEQPWFAGNKITFVDFLAYDVLDQHRIFEPKCLEAFPN 180
LKDFLARFEGLKKISAYMKSSSFLPRPV
                                                                                                 EKQKPEFLKSIPEKMKIYSEFLGKRPWFAGDKVTYYDFLAYDILDQYRMFEPECLDAFPN
                                                                                                                                                                                                     PYLIDGSHKVTQSNAILRYLGRKHNLCGETEEERIRVDTLENQVMDTRIHLMIVCCSPDF
                                                                                                                                                                                                                                                                                                           MAMILGYWNVRGLTHPIRLLLEYTDSNYEEKRYVMGDAPNFDRSQWLSEKFNLGLDIPNL
                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25643 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                          40.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                    36;
                                                                                                                                                                                                                                                                                                                                                                                                               Score 472.5; DB Pred. No. 4.2e-33 6; Mismatches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Craniata; Vertebrata;
Sciurognathi; Muridae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4E9C22F9AEEAC6C4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               208
  208
                                                   203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  family.
                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Euteleostomi;
; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Evidence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        218;
                                                                                                                                                                                                                                                                                                                                                                                                                    ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                           115
                                                                                                                                                                                                                                                                                                                                                                 55
                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                   60
```

1;

۲.

```
RESULT
016058
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                  용
                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                016058;
01-JAN-1998
01-JAN-1998
01-JUN-2002
Glutathione
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

MEDLINE-96379220; PubMed-8784771;

Liebau E., Muller V., Lucius R., Walter R.D., Henkle-Duhrsen K.;

"Molecular clonning, expression and characterization of a recombinant glutathione S-transferase from Echinococcus multilocularis.";

piochem. Parasitol. 77:49-56(1996).
                           "EgGST: a glutathione granulosus.";
Submitted (OCT-1998) t
                                                          SEQUENCE FROM N.A.
Fernandez Mancebo V
Fernandez Granja C.
                                                                                                 SEQUENCE FROM N.A. Fernandez V., Zaha A., Submitted (MAY-1997) t
                                                                                                                                                      Eukaryota; Metazoa; Platyhelminthes; Cyclophyllidea; Taeniidae; Echinococc
                                                                                                                                                                                                                                                    016058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Echinococcus multilocularis.
Eukaryota; Metazoa; Platyhelminthes; Ce.
Cyclophyllidea; Taeniidae; Echinococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1996 (TrEMBLrel.
01-NOV-1996 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
Glutathione transferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR004046; GST_Cterm.
InterPro; IPR004045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MO1. Biochem. Parasitol.
EMBL; X85736; CAA59739.1;
HSSP; P20136; 1GSU.
                                                                                                                                             NCBI_TaxID=6210;
                                                                                                                                                                            Echinococcus granulosus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                             176
                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                       116
                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                                                                                                                                                                                                                       LKAYLSRFENLPALRDYMASKEFKTCPCNGASAKWRG
                                                                                                                                                                                                                                                                                                                                             MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYE-----RDEGDKWRNKKFELGLEFPNL
                                                                                                                                                                                                                                                                                                                           LVSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFGG
                                                                                                                                                                                                                                                                                                                                                                                                    PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                               PYYIDGDFKLTQSGAILEYIADRHGMIPDCKKRRAVLHMLQCEVVDLRMAFTRTCYSPDF
       tted (OCT-1998) to the AF005928; AAB66318.1; AF101269; AAD16438.1;
P20136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                 8 (TrEMBLrel. 05,
B (TrEMBLrel. 05,
2 (TrEMBLrel. 21,
e S-transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   219 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                    PRELIMINARY;
1GSU
                                                                     . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25470 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40.2%;
                                                                                                      ដ
                                                S-transfersase
                                                                      Chalar
                                                                                                     Fernandez
o the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01,
01,
21,
(EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41;
                                                                                                                                                        Echinococcus
                                                                                                   andez C.;
EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created).
Last sequence update)
Last annotation updat
2.5.1.18).
                            EMBL/GenBank/DDBJ
                                                                                                                                                                                                           Last sequence up
                                                                                                                                                                                                                                Created)
                                                                     C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 468.5; DB!
Pred. No. 9.4e-33,
1; Mismatches 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74FA820AC56F745B CRC64;
                                                                     Martinez
                                                                                                                                                                 Cestoda;
                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cestoda;
                                                                                                                                                                                                                                                    219
                                                                                                                                                                                                                                                   ⋛
                                                                     Ċ.,
                                                 from
                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 5;
                                                                                                                                                                                                                                                                                                        217
                                                                                                                                                                                                                                                                                                                           212
                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;08
                            databases
                                                                                                   databases
                                                                                                                                                                 Eucestoda;
                                               Echinococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Çī
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                    55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲,
```

```
PRESULT OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTION OF STANDARD DESCRIPTIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SORDR
                                                                                                                                                                                                                                                                                                   RX KEDLINE-2108560; PubMed-1127851;

RX Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,

RA Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,

RA Alzawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,

RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

RA Kadota K., Matsuda H.A., Ashburnar M., Batalov S., Casavant T.,

RA Kadota K., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

RA Fleischhann W., Gaasterland T., Gissi C., King B., Kochiwa H.,

RA Fleischhann W., Gaasterland T., Gissi C., King B., Kochiwa H.,

RA Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,

Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,

RA Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,

RA Sakai K., Okido T., Fruno M., Aono H., Baldarelli R., Barsh G.,

RA Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,

RA Sakai K., Okido T., Fletcher C., Fujita M., Gariboldi M.,

RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,

RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,

RA Gustincich S., Hill D., Hofmann M., Rodriguez I., Sakamoto N.,

RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,

RA Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,

Havashtark Y., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,

Havashtarki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Best I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPRO04046; GST_Cterm.
InterPro; IPRO04045; GST_Nterm.
Pfam; PF00043; GST_C; 1.
Pfam; PF02798; GST_N; 1.
Transferase.
SEQUENCE 219 AA; 25553 MW; 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9DD25; PRELIMINARY;
Q9DD25; O1-JUN-2001 (TrEMBLrel. 17,
01-JUN-2001 (TrEMBLrel. 17,
01-JUN-2002 (TrEMBLrel. 21,
                    MGD; MGI:1915562; 0610005A07Rik.
MGD; MGI:1932134; Rpgriph.
InterPro; IPR004046; GST_Cterm.
InterPro; IPR003081; GST_mu.
InterPro; IPR004045; GST_Nterm.
                                                                                                                                                                       EMBL; AK002213; BAB21939.1;
HSSP; P28161; 2GTU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=C57BL/6J; TMEDLINE=21085660; Kawai J., Shinagay
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0610005A07Rik protein.
RPGRIP1 OR 0610005A07RIK.
                                                                                                                                                                                                                               Nature 409:685-690(200)
                                                                                                                                                                                                                                                                                       Hayashizaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus (Mouse)
                                                                                                                                                                                                                                                          Functional annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     بر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYE-----RDEGDKWRNKKFELGLEFPNL 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LKAYLSRFENLPALRDYMASKEFKTRPCNGASAKWRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LVSFKKRIEAIPQIDKYLKSSKYIAWPLQGWQATFGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EKLKPGLFETLAQKLPNFEAYLGEKEWLTGDKINYPDFSLCELLNQLMKFEPTCLEKYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ETLKVDFLSKLPEMLKMFEDRLSHKTYLNGDHVTHPDFMLYDALDVVLYMDPMCLDAFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MAPTLAYWDIRGLAEQSRLLLKYLEVEYDDKRYKIGSTPTFDRSAWLSEKFSLGLDFPNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PYYIDGDFKLTQSGAILEYIADRHGMIPDCKKRRAVLHMLQCEVVDLRMAFTRTCYSPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PYYIDGDVKLTQSMAIIRYIADKHNMLGGSPKERAEISMLEGAVLDIRYGVSRIAYSKDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-KIDNEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41.9%;
                                                                                                                                                                                                                                                       of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 467.5; Pred. No. 1.1e
                                                                                                                                                                                                                                                    full-length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Craniata; Vertebrata; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8883E70AD075D154 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.1e-32
                                                                                                                                                                                                                                                          mouse cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; 08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                       collection. ";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Euteleostomi;
; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ធ
                                                                                                                                                                                                                                                                                                                                                                    K. -F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run on:
                                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being part and is derived by analysis of the total score distribution.
                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein search, using sw
                                                                                                                                                                      Match
      100.0
100.0
100.0
100.0
100.0
100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    May 20, 2003, 07:58:08; Search time 0.506582 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-081-408-6
30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A_Geneseq_101002:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 5.1.5
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1984.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1987.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
                                                                                                                                                                                                                                                                                            /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1998.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2001.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2002.DAT:*
                                                                                                                                                                                                                                                                                                                                                                        /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                 /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
                                                                                                                                                                      Length
                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gapext 0.5
                                                                                                                                                                                                                                             of the total
                    AAR37658
AAR44185
AAR37655
AAR44190
AAR37652
AAR37654
AAR44186
AAY44186
AAR44189
                                                                                                                                                                      Ħ
                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (without alignments)
1578.232 Million cell updates/sec
                                                                                                                                                                                                                                         distribution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                908470
            Sequence encoded b
Sequence encoded b
N-terminus of fusi
N-terminus of fusi
Herbicidally activ
                                                                                                                                                                 Description
                                                                                                     Sequence encoded b
C-terminus of poli
Sequence encoded b
                                                                                         N-terminus of fusi
                                                                                                                                                                                                                                                       printed,
Key
                                                                                                                                                              Protein
                                                                                                                                                                                                                                                                  Synthetic
                                                                                                                                                                                                                                                                                            Recombinant virus; proteolytic cleavage site; vaccine; exogneous nucleic acid; replication competent.
                                                                                                                                                                                                                         Region
                                                                                                                                                                                                                                                                                                                                          exogenous
                                                                                                                                                                                                                                                                                                                                                        Sequence encoded by
                                                                                                                                                                                                                                                                                                                                                                                    25-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                 AAR37658;
                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR37658 standard; Protein; 11
                                                                                                                                                                                                                                                                                                                                       sequence.
```

26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	27	27	27	27	27	27	27	27	27	28	28	28	30	30
6.	6.	٥.	٥,		6	86.7				86.7	86.7			86.7	86.7	86.7			6.		0	0	0	0	0	0	0	Ö	Ō	Ū.	ū	93.3	ō	100.0
353	4	0	0	9	α	N	N	\mathbf{L}	\mathbf{L}	32	80	80	8	8	œ	æ	00	8	80	8	ťЛ	w	533	B	\mathbf{a}		m	76	24	σ	16	168	0	20
20	21	22	22	20	22	22	22	22	21	16	23	23	22	22	22	22	22	22	22	22	23	22	22	23	21	11	22	20	22	9	ø	21		13
AAY08011	AAY87824	AAU16173	AAU33721	AAY34608	ABB58876	AAG93627	AAG93640	AAB69397	AAB14984	AAR85037	AAU87019	ABB78613	AAB30540	AAB35451	AAE02604	AAU07225	AAU06626	AAE06897	AAG78108	AAE10652	ABB54739	AAU35118	ABB32426	AAU79681	AAY58734	AAR05711	ABB70448	AAY24124	809	81	w	826	003	AAR22210
											_	•																						
ammalian IBP-ALS	ximus th	man novel secre	onas aeruq	a pneumon	phila melano	anti-Rh(D)	anti-Rh([E coli	li iss prot	de rI from t	rhinc	Human Asp2 related	acid	rhinoviru	Aspartyl pr	ecognition site	etic PreSiss	an Asp2 PreSis	sion pro	ᄗ	lacti	coccus faec	de #5077 enc	protein #1	AST-1 pr	<u>.</u>	Drosophila melanog	peptide pr	teracting	ce of the v	es translate	erythropoi	quence encoded b	True type 3 poliny

ALIGNMENTS

Æ

(first entry)

recombinant poliovirus at 3'

end of

```
06-DEC-1991;
18-SEP-1992;
                                        04-DEC-1992;
                                                                                                                                                                  Cleavage-site
                                                                   10-JUN-1993
                                                                                               W09311251-A.
91US-0804893
92US-0947790
                                        92WO-US10543
                                                                                                                       /label= Polyprotein (PO)
                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                     'note= "artificial"
                                                                                                                                                                              'label= exogenous sequence
```

```
RESULT 2
AAY44185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
Query Match
Best Local Similarity
Matches 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            There are a number of locations within the poliovirus genome at which the exogenous nucleic acid sequence encoding the exogenous polypeptide and the nucleic acid sequences encoding the artificial proteolytic cleavage sites can be positioned to produce replication-competent recombinant polioviruses that express the encoded product. These sites within the genome of the poliovirus include a terminal end, the junction between the Vpl coding region and the 2A coding region, the junction between the 2A coding region and the 2B coding region and the junction between the 2C coding region and the 3A coding region end fite punction between the 2C coding region and the 3A coding region and the 3A coding region and the 3A coding region show poliovirus services and acquisit show poliovirus genome modifications which permit insertion of exogenous nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (AMCY )
                                                                                                                      08-DEC-1992;
06-DEC-1991;
18-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Recombinant viruses comprising artificial proteolytic cleavage site - useful as vaccines against bacterial, viral and fungal infections, parasitic diseases, cancer and allergies
                                                                                                                                                                                                                                                                                     Antimicrobial; cytostatic; antiallergic; replication; recombinant; poliovirus; vector; expression; exogenous; protease; cleavage site; genome; primer; PCR; amplification; vaccine; bacterium; fungus; yeast; infection; parasitic disease; cancer; allergy.
                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY44185 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     acid sequences at an end of the polioviral genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Fig 1A; 103pp; English
          WPI; 1999-632429/54.
N-PSDB; AAZ30653.
                                                                                                                                                                                                                                                                                                                                                          C-terminus of poliovirus protein for expression of exogenous genes
                                                 Feinberg
                                                                                                                                                                             31-JAN-1995;
                                                                                                                                                                                                                                  US5965124-A
                                                                                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMERICAN CYANAMID CO
WHITEHEAD INST BIOMEI
                                                                             WHITEHEAD INST BIOMEDICAL RES AMERICAN CYANAMID CO.
                                                   ĭ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                   Weeks-Levy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ξ,
                                                                                                                    92US-0986729.
91US-0804893.
92US-0947790.
                                                                                                                                                                             95US-0381637.
                                                                                                                                                                                                                                                                                                                                                                                                                                            peptide; 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ĭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BIOMEDICAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Reilly PA,
                                                   ÇĽ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                   Reilly PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                              ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Weeks-levy CL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2.2;
                                                   Andino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                   æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                poliovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
RESULT 3
AAR37655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    vector which is able to express an exogenous polypeptide as a component of a recombinant polyprotein precursor. The precursor molecule also contains a protease cleavage allowing the precursor to be subsequently proteolytically processed by the polio protease 3C to release the exogenous protein. Preferably the exogenous sequence and the cleavage site sequence are inserted into the vector sequence at a location in the genome of the parent poliovirus such that they do not disrupt a polioviral sequence necessary for polioviral replication. This sequence corresponds to the artifical proteolytic site which is fused to the 3' end of the exogenous gene between the exogenous protein and the fusion polyprotein from the poliovirus. The replication-competent recombinant viruses are useful as vaccines against bacterial, viral, fungal, and yeast infections, parasitic diseases, cancer and allergies.
                                                    WPI; 199
N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Replication-competent recombinant poliovirus for use as vaccine against bacterial, viral, fungal, and yeast infections, parasitic diseases, cancer and allergies -
                                                                                                                       (AMCY )
                                                                                                                                                                                                                                                                                                                                           Кеу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Fig 1A; 40pp; English.
Recombinant viruses comprising artificial proteolytic cleavage site - useful as vaccines against bacterial, viral and fungal infections, parasitic diseases, cancer and allergies
                                                                                                                                                              06-DEC-1991;
18-SEP-1992;
                                                                                                                                                                                                                                                                                                   Cleavage-site
                                                                                                                                                                                                                                                                                                                              Cleavage-site
                                                                                                                                                                                                                                                                                                                                                                     Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                 Recombinant virus; proteolytic cleavage site; vaccine; exogneous nucleic acid; replication competent.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence encoded by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR37655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR37655 standard; Protein; 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                             Andino
                                                                                                                                                                                                       04-DEC-1992;
                                                                                                                                                                                                                                  10-JUN-1993.
                                                                                                                                                                                                                                                            WO9311251-A
                                                                                                                                                                                                                                                                                                                                                                                               exogneous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       invention
                                                     1993-197068/24.
DB; AAQ43297.
                                                                                             77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 6; Conserv
                                                                                                                        WHITEHEAD INST
                                                                                                                                      AMERICAN CYANAMID CO
                                                                                             Feinberg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       relates to a replication-competent recombinant policyirus
                                                                                                                                                              91US-0804893.
92US-0947790.
                                                                                                                                                                                                      92WO-US10543
                                                                                                                                                                                                                                                                                    /label= 3Cpro
21..22
/label= 3Cpro
                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                             ×
                                                                                                                                                                                                                                                                                                                                                                                                                                       recombinant poliovirus pMoV 3.1 (2C/3A).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                       BIOMEDICAL
                                                                                             Reilly PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                              Weeks-levy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          component
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 to the 3'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

```
RESULT 4
AAY44190
IDY AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC AAY4
AXC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  There are a number of locations within the exogenous which the exogenous nucleic acid sequence encoding the extificial proteolytic cleavage sites can be positioned to produce replication-competent recombinant polioviruses that express the encoded product. These sites within the genome of the poliovirus include a terminal end, the junction between the Vpl coding region and the 2A coding region and the junction between the 2A coding region and the 2B coding region and the junction between the 2A coding region and the 3B coding region and the junction between the 2C coding region and the 3B coding region are junction between the 2C coding region and the 3B coding region are junction between the 2C coding region and the 3A coding region are junction between the 2C coding region and the 3B coding region are junction between the 2C coding region and the 3B coding region are junction between the 2C coding region and the 3B coding region are junction between the 2C coding region and the 3B coding region are junction between the 2C coding region and the 3B coding region are junction between the 2C coding region and the 3B coding region are junction between the 2C coding region and the 3B coding region are junction between the 2C coding region and the 3B coding region are junction between the 2C coding region are junction between the 3C coding region are junction between the 3C coding region and the 3B coding region are junction between the 3C coding region are junction are junction between the 3C coding region are junction vector which is able to express an exogenous polypeptide as a component of a recombinant polyprotein precursor. The precursor molecule also contains a protease cleavage allowing the precursor to be subsequently proteolytically processed by the polio protease 3C to release the exogenous protein. Preferably the exogenous sequence and the cleavage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-DEC-1992;
06-DEC-1991;
18-SEP-1992;
                                                                                                                                                                      The invention relates to a replication-competent recombinant poliovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (AMCY)
                                                                                                                                                                                                                                                                                                              Replication competent recombinant poliovirus fo bacterial, viral, fungal, and yeast infections, cancer and allergies -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Feinberg M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31-JAN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US5965124-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Poliovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genome; primer; PCR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Antimicrobial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-terminus of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY44190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       poliovirus; vector;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY44190 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1999-632429/54
                                                                                                                                                                                                                                                      2; Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WHITEHEAD INST BIOMEDICAL RES. AMERICAN CYANAMID CO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Weeks-Levy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          92US-0986729.
91US-0804893.
92US-0947790.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cytostatic; antiallergic; replication; re
ctor; expression; exogenous; protease; cle
; PCR; amplification; vaccine; bacterium;
                                                                                                                                                                                                                                               2C; 40pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95US-0381637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2B; 103pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          disease; cancer; allergy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CL, Reilly PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from modified poliovirus vector pMoV3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB
5.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Andino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14;
                                                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                             r use as vaccine ag
parasitic diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cleavage site;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            recombinant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                       component
                                                                                                                                                                                                                                                                                                                                                                            against
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT 5
AAR37652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 6
                                                                                                                                                                                          (AMCY
                                                                                                                                                                                                                        06-DEC-1991;
18-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               site sequence are inserted into the vector sequence at a location in the genome of the parent poliovirus such that they do not disrupt a polioviral sequence necessary for polioviral replication. This sequence corresponds to the N-terminal region of the fusion protein encoded by the multicloning site of the poliovirus vector pMov3.1. The sequence spans the unique initiation site, the multicloning site, the protease C cleavage site and part of the N-terminus of the fusion polyprotein. The replication-competent recombinant viruses are useful as vaccines against bacterial, viral, fungal, and yeast infections, parasitic
                                                                                                                                         N-PSDB;
                                                                                                                                                                       Andino R,
                                                                                                                                                                                                                                                      04-DEC-1992;
                                                                                                                                                                                                                                                                                                                            Cleavage-site
                                                                                                                                                                                                                                                                                                                                                         Key
                                                                                                                                                                                                                                                                                                                                                                             Synthetic
                                                                                                                                                                                                                                                                           10-JUN-1993
                                                                                                                                                                                                                                                                                              W09311251-A
                                                                                                                                                                                                                                                                                                                                                Region
                                                                                                                                                                                                                                                                                                                                                                                              Recombinant virus; proteolytic cleavage site; exogneous nucleic acid; replication competent
                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence encoded by
                                                                                                                                                                                                                                                                                                                                                                                                                                                   25-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR37652;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR37652 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 EALFQG
                                                                                                                                                  1993-197068/24.
                                                                                                                                         AAQ43294
                                                                                                                                                                                         AMERICAN CYANAMID CO
WHITEHEAD INST BIOMEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  h 100.0%;
Similarity 100.0%;
6; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cancer and allergies.
                                                                                                                                                                    Feinberg M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first
                                                                                                                                                                                                                       91US-0804893.
92US-0947790.
                                                                                                                                                                                                                                                      92WO-US10543
                                                                                                                                                                                                                                                                                                               /label= poly-Gly
26..27
/label= 3c pro
                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers 16..21
                                                                                                                                                                                                                                                                                                                                                                                                                           recombinant poliovirus pMoV 1.3 (NH2-terminal)
                                                                                                                                                                                         BIOMEDICAL.
                                                                                                                                                                    Reilly PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 30; DE
Pred. No. 5.3
); Mismatches
                                                                                                                                                                     Weeks-levy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
5.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20;
                                                                                                                                                                                                                                                                                                                                                                                                         vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

There are a number of locations within the poliovirus genome at which the exogenous nucleic acid sequence encoding the exogenous polypeptide and the nucliec acid sequences encoding the artificial proteolytic cleavage sites can be positioned to produce replication-competent recombinant polioviruses that express the encoded product. These sites within the genome of the poliovirus include a terminal end, the junction between the Vpl coding region and the 2A coding

genome of the poliovirus

Disclosure; Fig 2B;

103pp; English.

Recombinant viruses comprising artificial proteolytic cleavage site - useful as vaccines against bacterial, viral and fungal infections, parasitic diseases, cancer and allergies

В ρ

```
RESULT 6
AAR37654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ព្រព្ពន្តន
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              region, the junction between the 2A region and the junction between the coding region (see AAQ43294-98).
                             There are a number of locations within the pollovirus genome at which the exogenous nucleic acid sequence encoding the exogenous polypeptide and the nucliec acid sequences encoding the artificial proteolytic cleavage sites can be positioned to produce replication-competent recombinant polloviruses that express the encoded product. These sites within the genome of the pollovirus include a terminal end, the junction between the Vpl coding region and the 2B coding region, the junction between the 2A coding region and the Junction between the 2C coding region and the 3A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR37654 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                       Recombinant viruses comprising artificial proteolytic cleavage site - useful as vaccines against bacterial, viral and fungal infections, parasitic diseases, cancer and allergies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-SEP-1993
                                                                                                                                                                                                                                                                                                                   06-DEC-1991;
18-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                           10-JUN-1993.
                                                                                                                                                                                                                                                                                                                                                                                                                                  Cleavage-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                exogneous nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Recombinant virus;
                                                                                                                                                  Disclosure; Fig 2B; 103pp; English.
                                                                                                                                                                                                                       N-PSDB;
                                                                                                                                                                                                                                                        Andino R,
                                                                                                                                                                                                                                                                               (AMCY )
                                                                                                                                                                                                                                                                                                                                                    04-DEC-1992;
                                                                                                                                                                                                                                                                                                                                                                                                 WO9311251-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cleavage-site
Sequence
                                                                                                                                                                                                                                                                                 (WHED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 EALFQG 6
                                                                                                                                                                                                                       1993-197068/24.
DB; AAQ43296.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6;
                                                                                                                                                                                                                                                                                AMERICAN CYANAMID CO
WHITEHEAD INST BIOME!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   encoded
                     the junction between the ion (see AAQ43294-98).
                                                                                                                                                                                                                                                        Feinberg M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31 AA;
31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                   91US-0804893.
92US-0947790.
                                                                                                                                                                                                                                                                                                                                                    92WO-US10543
                                                                                                                                                                                                                                                                                                                                                                                                                                  /label= 3Cpro
26..27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  γď
                                                                                                                                                                                                                                                                                                                                                                                                                       /label= 3Cpro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; proteolytic cleavage site; vaccine;
acid; replication competent.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%;
                                                                                                                                                                                                                                                                                 BIOMEDICAL
                                                                                                                                                                                                                                                          Reilly PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 poliovirus pMoV 2.5 (2A/2B).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            coding region and the 2B 2C coding region and the
                                                                                                                                                                                                                                                          Weeks-levy CL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
6.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              coding
3A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
```

Query Match

100.0%;

Score

30;

DB

14;

Length

31;

```
RESULT 7
AAY44186
                                                    The invention relates to a replication-competent recombinant poliovirus vector which is able to express an exogenous polypeptide as a component of a recombinant polyprotein precursor. The precursor molecule also contains a protease cleavage allowing the precursor to be subsequently proteatly processed by the polio protease 3C to release the exogenous protein. Preferably the exogenous sequence and the cleavage exogenous requence are inserted into the vector sequence at a location in the genome of the parent poliovirus such that they do not disrupt a polioviral sequence necessary for polioviral replication. This sequence corresponds to the N-terminal region of the fusion protein encoded by the multicloning site of the poliovirus vector pMoV1.3. The sequence spans the unique initiation site, the multicloning site, the protease C cleavage site and part of the N-terminus of the fusion polyprotein. The replication-competent recombinant viruses are useful as vaccines against bacterial, viral, fungal, and yeast infections, parasitic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 100 Matches 6; Conservative
Query Match
Best Local Similarity
Matches 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-DEC-1992;
06-DEC-1991;
18-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               poliovirus; vector; expression; exogenous; protease; cleavage site; genome; primer; PCR; amplification; vaccine; bacterium; fungus; yeast; infection; parasitic disease; cancer; allergy.
                                                                                                                                                                                                                                                                                                                                              Replication-competent recombinant poliovirus for use as vaccine against bacterial, viral, fungal, and yeast infections, parasitic diseases, cancer and allergies -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-terminus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAY44186 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Feinberg M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (WHED )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31-JAN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US5965124-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Poliovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAY44186
                                                      Sequence
                                                                                                                                                                                                                                                                                                                   Example 2; Fig 2B; 40pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                  1999-632429/54
                                                                                                                                                                                                                                                                                                                                                                                                      AA230654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WHITEHEAD INST BIOMEDICAL AMERICAN CYANAMID CO.
                                                                                  cancer and allergies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of.
                                                       μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27
 100.0%;
llarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                              Weeks-Levy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92US-0986729.
91US-0804893.
92US-0947790.
                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9505-0381637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31
 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              from modified poliovirus vector
                                                                                                                                                                                                                                                                                                                                                                                                                                              Reilly PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred.
               Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.3;
                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                               Andino
                            BB
                              20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
  0
                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PMoV1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

Ş

Н

EALFQG

```
RESULT 8
AAY44189
IDY AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX AAY4
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN fe
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f
XXX IN f

                Ş
                                                                                                                                                                                                                                            CC The invention relates to a replication-competent recombinant poliovirus CC vector which is able to express an exogenous polypeptide as a component CC of a recombinant polyprotein precursor. The precursor molecule also CC contains a protease cleavage allowing the precursor to be subsequently CC proteolytically processed by the polio protease 3C to release the CC exogenous protein. Preferably the exogenous sequence and the cleavage CC site sequence are inserted into the vector sequence at a location in CC the genome of the parent poliovirus such that they do not disrupt a CC polioviral sequence necessary for polioviral replication. This sequence corresponds to the N-terminal region of the fusion protein encoded by CC the multicloning site of the poliovirus vector pMoV2.5. The sequence CC cleavage site and part of the N-terminus of the fusion polyprotein. CC against bacterial, viral, fungal, and yeast infections, parasitic cc diseases. Cancar and allowing.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                         Matches
                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 08-DEC-1992;
06-DEC-1991;
18-SEP-1992;
                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Replication-competent recombinant policyirus for use as vaccine against bacterial, viral, fungal, and yeast infections, parasitic diseases, cancer and allergies -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1999-632429/54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Feinberg M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pollovirus; vector; expression; exogenous; protease; cleavage site; genome; primer; PCR; amplification; vaccine; bacterium; fungus; yeast; infection; parasitic disease; cancer; allergy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-terminus of fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (WHED ) WHITEHEAD INST BIOMEDICAL RES (AMCY ) AMERICAN CYANAMID CO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-JAN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US5965124-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Poliovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Antimicrobial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY44189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY44189 standard;
                                                                                                     Local
1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EALFOG
                                                                      Similarity 6; Conserv
                                                                                                                                                                                                                                    cancer and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F1g
                                                                                                                                                                                 μ
                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Weeks-Levy CL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                    3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92US-0986729.
91US-0804893.
92US-0947790.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2C; 40pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cytostatic; antiallergic; replication;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9508-0381637
                                                           100.0%; Pr
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        peptide;
                                                                                                                                                                                                                                 allergies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3
                                                                                            Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Reilly PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       from modified poliovirus vector pMoV2.5
                                                                   Mismatches
                                                                                          DB
6.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Andino
                                                                                                                      20;
                                                                0;
                                                                                                                Length 31;
                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               recombinant;
                                                                0
                                                           Gaps
                                                             0
```

밁

22

EALFQG

27

Enterovirus

```
RESULT 10
AAR12141
ID AAR12
XX
AC AAR12
XX
DT 05-AU
XX
Enter
XX
Enter
XW menin
XX
OS Enter
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 9
ABB92703
ID ABB9
XX ABB9
AC ABB9
AC ABB9
XX Herb
XX Herb
XX Herb
XX Herb
XX WO20
XX O7-F
XX O7-F
XX O7-F
XX Ifet
DR WPI;
XX Ifen
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT Comp
PT C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are useful as herbicides.
                                                                            meningitis;
                                                                                                      Enteroviruses; monoclonal
                                                                                                                                                      Enteroviral polypeptide.
                                                                                                                                                                                                                     05-AUG-1991
                                                                                                                                                                                                                                                                           AAR12141
                                                                                                                                                                                                                                                                                                                           AAR12141 standard; Protein; 2185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Herbicidal; plant; agriculture; herbicide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABB92703 standard; Protein; 989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tietjen K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-AUG-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W0200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABB92703;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    235 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (FARB ) BAYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2002-269010/31.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             l Similarity
6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 1914; 261pp + Sequence Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         989 AA;
                                                                            encephalitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Weidler
                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                    antibodies; myocarditis; myositis;
pancreatitis; post viral fatigue.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 30; DB 23;
Pred. No. 2.1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ID NO 1914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>..</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
```

Length 2206; Indels

0

Gaps

0,

```
RESULT 11
AAR22210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1425 EALFOG 1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This eteroviral polypeptide is used to raise poly- or monoclonal antibodies (Abs). These are useful in assays for detecting enterovirus specific antigens, as an indication of enteroviral disease. All 70 serotypes of the enteroviral family can be detected. Diseases such as myocarditis, myositis, meningitis, encephalitis and pancreatitis can be diagnosed using the Abs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        new DNA encoding it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1991-165150/23
N-PSDB; AAQ11816.
                                                                                                                                                                                                                                                                                                                                                                                                                   True type 3 poliovirus protein from LED3
                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-JUL-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR22210 standard; Protein; 2206 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 1; pages 14-15; 26pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New enteroviral polypeptide for raising group specific antibodies - for detecting any type of enterovirus in blood or serum, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kandolf R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-NOV-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DE3939200-A
                                                                                                                                    Racaniello V,
                                                                                                                                                                                                    20-AUG-1990;
20-AUG-1990;
                                                                                                                                                                                                                                                                                    05-MAR-1992
                                                                                                                                                                                                                                                                                                                                                      Poliovirus
                                                                                                                                                                                                                                                                                                                                                                                     RNA virus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR22210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (PLAC ) MAX PLANCK GES WISSENSCH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27-NOV-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-MAY-1991
Disclosure; Fig 6; 110pp; English
                               New vaccine against infectious polio-virus comprises RNA virus for producing RNA virus cDNA and viable RNA virus
                                                                                   N-PSDB;
                                                                                                                                                                                                                                                   20-AUG-1991;
                                                                                                                                                                                                                                                                                                                     WO9203538-A
                                                                                                                                                                 (UYNY-) COLUMBIA UNIV NEW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 EALFQG 6
                                                                                 1992-096882/12.
DB; AAQ22965.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                     error reduction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2185 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first pntry)
                                                                                                                                    Tatem JM,
                                                                                                                                                                                                    90US-0570000
90US-0569916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89DE-3939200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89DE-3939200
                                                                                                                                                                                                                                                   91WO-US05890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                  Weekslevy CL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.7e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
AAP20037
ID AAP20
XX AAP20
XX AAP20
XX AAP20
XX AAP20
XX AAP20
XX Beque
DE Seque
DE FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
FT Prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ×32222222222222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The protein sequence was deduced from the cDNA sequence of P3 C politovirus obtd as in AAQ22965. The cDNA sequence is that of a C true RNA virus, i.e. the cDNA directs the prodn. of a viable C RNA virus which is phenotypically similar to the source virus. C The full length cDNA in pLED3 was infectious. In vitro C transcription of pLED3 cDNA using T7 RNA polymerase produced C RNAs which possessed several erroneous amino acids. The RNA viruses are used in vaccines against polio. The screening method C can be used during amplification of the source virus for vaccine prodn. to ensure maintenance of C at position 2493 in the viral genome i.e. increasing the attenuation. The new prod. overcomes the problem of errors introduced during replication of ss RNA, which is much higher than for ds DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence encoded by a full-length cDNA copy of the poliovirus genome in plasmid pvR106.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1449 EALFQG 1454
12-NOV-1981;
20-APR-1981;
                                                                                                                                                                                                 Protein
                                                                                                                                                                                                                                                                                                                                 Protein
                                                                                                                                                                                                                                                                                                                                                                  Protein
                                                                                                                                                                                                                                                                                                                                                                                                   Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human poliovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Poliovirus; picornavirus; vaccine; antigen; immunogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        05-AUG-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAP20037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAP20037 standard; Protein; 2209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                12-NOV-1981;
                                                                               28-OCT-1982
                                                                                                               W08203632-A
                                                                                                                                                                 Protein
                                                                                                                                                                                                                                  Protein
                                                                                                                                                                                                                                                                 Protein
                                                                                                                                                                                                                                                                                                Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2206 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
81US-0320525
81US-0255879
                                              81WO-3200525
                                                                                                                                                                                               /label 1b
1544..1565
/label VPg
1566..1748
                                                                                                                                                                                                                                                                                                /label= VP3
580..881
/label= VP1
882..1030
/label= 35
1031..1127
/label= 55
1128..1456
                                                                                                                                                                                                                                                                                                                                                                                                                                    /label= VP2
342..579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                'label= 4(p(63)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   label = P4
                                                                                                                                                                                                                                                                                  label-
                                                                                                                                                                                 label- 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                               .1543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 30; DB Pred. No. 4.7
D; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 13;
4.7e+02;
ches 0;
```

밁 Ş

PRESENTATION OF THE PRESEN

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                         29-SEP-1998;
29-JAN-1999;
05-FEB-1999;
24-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Plasmid pvR106 was produced by combining plasmids pvR104 and pvR105. It contains a full-length cDNA copy of the poliovirus genome. E.coli HB101 contg. this plasmid has been registered as ATCC 31844. The full-length poliovirus cDNA molecule is itself infectious and can be introduced into cells and these cultured to produce RNA virus. Alternatively, the infectious cDNA can be treated with mutagens and the altered material used to infect cells so that attenuated virual RNA is prod. and this used to make vaccines. For antibody prodn. cDNA capable of directing antigen prodn. is selected and isolated and incorporated into cells which are incubated to produce RNA antigen.
Novel methods for recombining codon-altered libraries of nucleic acids used to produce new proteins and new vectors with reduced rates of reversion to wild type \, -
                                                                                                               (MAXY-) MAXYGEN INC
                                                                                                                                                                                                           28-SEP-1999;
                                                                                                                                                                                                                                      06-APR-2000.
                                                                                                                                                                                                                                                                 WO200018906-A2
                                                                                                                                                                                                                                                                                                                                                                                                Sheep erythropoietin protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                           09-AUG-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY82677 standard; Protein; 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1452
                                                                                                                                                                                                                                                                                                                    transcription
                                                                                                                                                                                                                                                                                                                                                                        Erythropoietin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example; Table 1, pages 25-31; 50pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Prodn of CDNA representing viral RNA sequences transcription, insertion into vector and host co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1982-95059E/44 (95059E).
N-PSDB; AAN20042.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Baltimore D,
                                                                                                                                                                                                                                                                                                                               Erythropoletin; EPO: G-CSF; granulocyte colony stimulating fawobble; codon altered gene; shuffling; modification; vaccine; insulin; peptide hormone; growth factor; cytokine; interferon interleukin; leukaemia inhibitory factor; oncostatin M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (MASI ) MASSACHUSETTS INST TECH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity es 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 EALFOG 6
                                                         2000-303449/26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EALFQG 1457
                                                                                    PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2209 AA;
                                                                                   Liu L,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                  activator; expression activator;
                                                                                                                                       98US-0102362.
99US-0117729.
99US-0118813.
99US-0141049.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Racaniello VR
                                                                                                                                                                                                          99WO-US22588
                                                                                    Stemmer WPC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 30; DB 3;
Pred. No. 4.8e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                             oncostatin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cell
                                                                                                                                                                                                                                                                                                               infectious organism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 2209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ğ
                                                                                                                                                                                                                                                                                                                                            interferon;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transformation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

Peptide

/label=vP1 873..1008

Peptide Peptide

/label=VP2 337..574 /label-VP3 575..872

Key synthetic

Location/Qualifiers

/label-VP4

Peptide

Peptides translated

from Human Rhinovirus Strain 89 (HRV89) ORF.

(HRV89); immune system stimulation; ss

human rhinovirus

Strain 89

23-AUG-1986; 03-MAR-1988 DE3628658-A

86DE-3628658

Peptide Peptide Peptide Peptide Peptide Peptide

'label=polymerase 'label=protease /label=p2-C 1501..1521 /label

/label=P2-B 1104..1500

/label=P2-A 1009..1103

```
A method has been developed of making codon altered nucleic acids (NAS), CC comprising providing a NA sequence (NAI) which encodes a polypeptide CC (PI) providing codon altered NA sequences, each encoding PI or a CC modified form of it, and recombining the codon altered NA sequences to produce a target codon altered NA which encodes a second protein.

CC The method of the invention can be used for recombining codon-altered CC libraries of nucleic acids to produce new proteins, which have CC include those coding for therapeutic proteins such as erythropoietin CC (EPO), insulin, peptide hormones, growth factors, cytokines, interferons, interleukins, leukaemia inhibitory factor, and oncostatin M, as well as C cranscription and expression activators and proteins from infectious corganisms for use as vaccines. The method can also be used to produce The present sequence represents an EPO protein sequence, which is used.
  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                       Example;
                                         example
                                                                                                                                                                                                                                                                                                                                                                                                                  Fig 3; 92pp;
168
                                           from
Ą,
                                         the
                                                                                                                                                                                                                                                                                                                                                                                                                    English
                                         present invention.
```

RESULT 14 AAP80131 Matches AAP80131; AAP80131 standard; 18-OCT-1990 72 EAIFQG 77 Local 1 EALFQG 6 l Similarity 5; Conserv Conservative (first entry) protein; 93.3%; 2164 Score 28; DB Pred. No. 1e+(1; Mismatches 1; 1e+02; 0 Indels 0 Gaps

밁 Ş

Query Match

ΒŒ 21;

Wength 168;

```
RESULT 15
AAP81045
ID AAP81
XX AC AAP81
XX Seque
DE the e
XX Vacc
XX Vacc
XX Vacc
XX PT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
FT Pro
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 5; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Duchler M,
Kuchler E;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The viral genome is RNA with a single large open reading frame encoding 10 viral peptides. These peptides can be used therapeutically to stimulate the immune system in response to HRV89 and to bind to/block
                                                                                                                                                                                                                                                                                 Protein
                                                                                                                                                                                                                                                                                                                                                   Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence of the viral proteins VP1-VP4, P2A-P2C, PCA-P3C encoded by the genomic RNA of rhinovirus strain HRV89.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAP81045 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1420 EAIFQG 1425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cellular receptors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disclosure; ; p; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          receptors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New DNA coding for proteins of human rhinovirus 89 - and new polypeptides for stimulating immunity of blocking cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1988-064926/10
N-PSDB; AAN80153.
                                        EP261403-A
                                                                                                                                          Protein
                                                                                                                                                                                                            Protein
                                                                                                                                                                                                                                                                                                                                                                                                                            Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rhinovirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Vaccine; diagnosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-AUG-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAP81045;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (BOEH ) BOEHRINGER INGELHEIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-AUG-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2164 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Skern T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86DE-3628658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /label= VP4
70..337
                                                                                                                                                                                                    | \label = P2-A | \label = P2-B | \label = P2-B | \label = PC-2 | \label = PC-2 | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-A | \label = P3-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /label- vP2
338..575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73..1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .abel- VP3
                                                                                                                                                                           .abel- PROTEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       abel- vp1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein; 2164 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  93.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sommergruber W,
                                                                                                         POLYMERASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 28;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 9;
1.4e+03;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Neubauer C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Grundler P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Blaas D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

Search completed: May 20, Job time: 1.50658 secs

2003, 11:33:56

0;

```
밁
                    Š
                                                         Query Match
Best Local :
                                              Matches
                                                                                                             The viral proteins are used for stimulating a protective immune response and for blocking cellular receptors. Abs against them are useful for assay and purificm. of the corresp. antigem, and can also be used for the therapeutic and diagnostic applications.
                                                                                                                                                                                                                                                                              Duechler M, S)
D, Kuchler E,
1420 EAIFQG 1425
                                                                                                                                                                         Claim 8; Fig 4; 66pp; German.
                                                                                                                                                                                                                                              WPI; 1988-085735/13.
N-PSDB; AAN81390.
                                                                                                                                                                                                                                                                                                                                         17-JAN-1987;
23-AUG-1986;
                                                                                           Sequence
                                                                                                                                                                                                           New DNA corresponding to viral RNA of rhino-virus HRV89 - useful for prodn. of polypeptide(s) for stimulating immune system against HRV
                                                                                                                                                                                                                                                                                                                                                                            20-AUG-1987;
                                                                                                                                                                                                                                                                                                                                                                                                    30-MAR-1988.
                                                                                                                                                                                                                                                                                                                  (BOEH ) BOEHRINGER INGELHEIM.
                                             Local Similarity
les 5; Conserv
                     1 EALFQG 6
                                                                                           2164 AA;
                                              Conservative
                                                                                                                                                                                                                                                                                Skern T, So
E, Frasei L,
                                                                                                                                                                                                                                                                                                                                         87DE-3701301
86DE-3628658
                                                                                                                                                                                                                                                                                                                                                                            87EP-0112104
                                                        93.3%;
                                                                                                                                                                                                                                                                              Sommergruber W,
L, Zorn M;
                                          Score 28; DB 9; LC
Pred. No. 1.4e+03;
Pred. No. 1.4e+03;
                                                                                                                                                                                                                                                                                            Neubauer
                                                                   Length 2164;
                                                                                                                                                                                                                                                                                            ú
                                              Indels
                                                                                                                                                                                                                                                                                            Grundler P,
                                              0
                                           Gaps
                                                                                                                                                                                                                                                                                            Blaas;
```

Title: Perfect score: Sequence:

9

Scoring table:

Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence

2, Appli 2, Appli 63, Appli 63, Appli 63, Appli 63, Appli 63, Appli 21, Appli 21, Appli 21, Appli 21, Appli 21, Appli 21, Appli 21, Appli 21, Appli 21, Appli 3, Appli 3, Appli 3, Appli 3, Appli 3, Appli

Sequence

```
OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                       greater
                                                                                                                                                                                                                                                                                                                                                                                             derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                        Issued_Patents_AA:*
1: /cgn2_6/ptodata/2,
2: /cgn2_6/ptodata/2,
3: /cgn2_6/ptodata/2,
4: /cgn2_6/ptodata/2,
5: /cgn2_6/ptodata/2,
6: /cgn2_6/ptodata/2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-081-408-
30
1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                           is the number of results predicted by chance to have a ater than or equal to the score of the result being printed, rived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                 Match
            262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        May 20, 2003, 11:30:54 ; Search time 0.193373 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum Match 0%
Maximum Match 100%
Listing first 45 st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                      /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.5 (c) 1993 - 2003 Compugen
                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gapext
                    US-08-381-637-27
US-08-381-637-37
US-08-381-637-35
US-08-381-637-35
US-08-381-637-35
US-08-461-503-2
US-08-461-503-2
US-09-513-309-2
US-09-521-109-2
US-09-548-372D-62
US-09-548-372D-62
US-09-548-372D-62
US-09-548-372D-62
US-09-548-372D-62
US-09-240-274-185
US-08-487-072A-185
US-08-487-072A-185
US-08-487-072A-185
US-09-240-274-139
US-09-240-274-139
US-09-240-274-139
US-08-487-346-50
US-08-477-346-50
US-08-477-346-50
US-08-477-346-50
US-08-477-346-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      summaries.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                      SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (without alignments)
912.939 Million cell updates/sec
                                            Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                               Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                Description
         Sequence
Sequence
Sequence
 Sequence
        29, Appl
2, Appl
2, Appl
3, Appl
3, Appl
3, Appl
62, Appl
62, Appl
62, Appl
62, Appl
185, Appl
185, Appl
185, Appl
185, Appl
185, Appl
185, Appl
185, Appl
185, Appl
185, Appl
           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 1
US-08-381-637-27
; Sequence 27, A
                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ve
CURRENT APPLICATION NUMBER: US/08/381,637
FILING DATE:
CLASSIFICATION UNMBER: US/08/381,637
FILING DATE: 08-DEC-1992
APPLICATION NUMBER: 32,227
REPLICATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: 32,227
REFISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: WHI91-01A/
TELECOMMUNICATION INFORMATION:
TELLEPHONE: (617) 861-6240
TELEFAX: (617) 861-6240
INFORMATION FOR SED ID NO: 27:
SEQUENCE CHARACTERISTICS:
LENGTH: 11 amino acids
TYPE: amino acids
TYPE: amino acids
TYPE: amino acids
TYPE: amino acids
                                                                                 ; MOLECULE TYPE:
US-08-381-637-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent No. 5965124
GENERAL INFORMATION:
                                             Query Match
Best Local
                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: PROCIME Same
TITLE OF INVENTION: PRODUCING Same
NUMBER OF SEQUENCES: 30
CORRESPONDENCE ADDRESS:
ADDRESSE: Hamilton, Brook, Smith &
STREET: 2 Militia Drive
CITY: Lexington
COUNTRY: US
ZIP: 02173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Mark Feinberg, Raul Andino, Carolyn Louise APPLICANT: Weeks-Levy and Patricia Anne Reilly TITLE OF INVENTION: Recombinant Vaccines and Method o
                                            Local
EALFOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                          protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19
21
21
178
178
182
182
183
184
184
                                             100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US/08381637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-181-706-2
US-09-459-066-2
US-09-459-066-2
US-09-459-066-2
US-08-383-753-63
US-08-595-512-63
US-08-512-983-63
US-09-512-983-63
US-09-315-689-5
US-09-561-108-14
US-09-561-108-14
US-09-561-108-14
US-09-561-108-14
US-09-561-1589-3
US-09-561-596-14
US-09-561-596-14
US-09-025-059-3
US-09-025-059-3
                                                                                                                                                                                                   WHI91-01AA
                                  0
                                            Score 30; DB 2
Pred. No. 0.45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Smith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALIGNMENTS
                                  Mismatches
                                                                                                                                                                                                                                                                                                                                Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                   & Reynolds,
                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                 #1.25
                                  0;
                                                         Length 11;
                                  Indels
```

of.

Result No.

Score

Pred. No. score grea and is der

110 111 113 114 115 116 117 117 118 119 119 119 123 123 123 123 124

0

Gaps

0

Database

Minimum Total number

80 80

seq

Maximum

Post-processing:

₽

```
RESULT 2
US-08-381-637-37
                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; MOLECULE TYPE: US-08-381-637-37
                                                                                                                                                                                                                                                                     US-08-381-637-29
                                                                                                                                                                                                             Sequence 29, Application US/08381637
Patent No. 5965124
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (617) 861-9540
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 26 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Mark Feinberg, Raul Andino, Carolyn Louise APPLICANT: Weeks Levy and Patricia Anne Reilly TITLE OF INVENTION: Recombinant Vaccines and Method of TITLE OF INVENTION: Producing Same NUMBER OF SEQUENCES: 39
                                                                                  APPLICANT: Mark Feinberg, Raul Andino, Carolyn Louise APPLICANT: Weeks-Levy and Patricia Anne Reilly TITLE OF INVENTION: Recombinant Vaccines and Method of TITLE OF INVENTION: Producing Same NUMBER OF SEQUENCES: 39
CORRESPONDENCE ADDRESS: Hamilton, Brook, Smith & Reynolds, P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: WHI91-01AA TELECOMMUNICATION INFORMATION: TELEPHONE: (617) 861-6240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY AGENT INFORMATION:
NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/9
FILING DATE: 08-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Rel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                              STREET: 2 MILICA
CITY: Lexington
                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity hes 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
COUNTRY: US
ZIP: 02173
                                       STATE:
                                                                                                                                                                                                                                                                                                                                            1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                           1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lexington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7, Application US/08381637 
5965124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    amino acid
GY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ¥
                                   ΜA
                                                                      2 Militia Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 Militia Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hamilton, Brook, Smith & Reynolds, P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 30; DB 100.0%; Pred. No. 1.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07/986,729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08/381,637
                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2; Length 26;
                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 4
US-08-381-637-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-381-637-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: (617) 861-954
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 31 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: WHI91-01AA TELECOMMUNICATION INFORMATION: TELEPHONE: (617) 861-6240
REFERENCE/DOCKET NUMBER: WH
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 861-6240
TELEFAX: (617) 861-9540
NFORMATION FOR SEQ ID NO: 35:
                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1:0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: 11 MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDIUM TYPE: Floppy
                                                                                                             APPLICATION NUMBER: 07/98 FILING DATE: 08-DEC-1992 ATTORNEY/AGENT INFORMATION: NAME: Granahan, Patricia
                                                                                                                                                                                    CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Mark Feinberg, Raul Andino, Carolyn Louise APPLICANT: Weeks Levy and Patricia Anne Reilly TITLE OF INVENTION: Recombinant Vaccines and Method of TITLE OF INVENTION: Producing Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           111111
22 EALFQG 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 07/9 FILING DATE: 08-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                              NAME: Granahan, Patricia REGISTRATION NUMBER: 32,
                                                                                                                                                                                                                           APPLICATION NUMBER: US/08/381,637 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: UZIP: 02173
                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: 2 Milit CITY: Lexington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   35, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amino acid
                                                                                                                                                                                                                                                                                                                                                                                                             Æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/08381637
                                                                                                                                                                                                                                                                                                                                                                                                                                        12B: Hamilton, Brook, Smith & Reynolds, P.C.
2 Militia Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                            SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        861-9540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07/986,729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/381,637
                                                                                                                                                                       07/986,729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                            WHI91-01AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 30; DB:
Pred. No. 1.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 2; Length 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
```

0;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; MOLECULE TYPE: protein US-08-381-637-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 5
US-07-852-260-2
                                                                                                           US-08-461-503-2
                                                                                                                                                 RESULT. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 6
Sequence 2, Application US/08461503 Patent No. 5834302 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEX: 422523 COOP UI
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
NAME: White, John P.
REGISTRATION UNMBER: 28,678
REFERENCE/DOCKET NUMBER: 3660
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION 1077-9550
TELECOMMUNICATION 1077-9550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/852,260
FILING DATE: 19920619
CLASSIFICATION: 435
ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNEY ATTORNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 31 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                             1449 EALFQG 1454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 2206 amino acids
TYPE: AMINO ACID
TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 2206 amino aci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FITLE OF INVENTION: METHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE: New York COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Cooper & Dunham STREET: 30 Rockefeller Plaza CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity 100 tes 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity es 6; Conserv
                                                                                                                                                                                                                                                                                                                                  1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2, Application US/07852260
5, 5525715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tatem, Joanne M.
Weeks-Levy, Carolyn L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (212) 664-0525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Racaniello, Vincent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       METHODS FOR PRODUCING RNA VIRUSES FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 30; D)
100.0%; Pred. No. 1.;
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36607-B-PCT-US
                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2; Length 31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                          .3e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 2206;
                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                   0;
```

```
Query Match
Best Local Similarity
""+"hes 6; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; MOLECULE TYPE: protein US-08-461-503-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 278-0400
TELEPAX: (212) 391-0525
TELEX: 422523 COOP UI
INFORMATION FOR SEO ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 2206 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                              atent No. 6136570
GENERAL INFORMATION:
         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release 1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1449 EALFQG 1454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION DATA:
APPLICATION NUMBER: US,
FILING DATE: 5-JUN-199:
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: White, John P.
REGISTRATION NUMBER: 28,678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: METHODS FOR CONA
                                                                                                                 ADDRESSEE: Cooper & D
STREET: 1185 Avenue o
CITY: New York
STATE: New York
COUNTRY: U.S.A.
IP: 10036
                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                           TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                           APPLICANT: Tatem, Joann
APPLICANT: Weeks-Levy,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: UZIP: 10112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 EALFQG 6
 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                  Application US/08465250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1185 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 U.S.A.
                                                                                                                                                                                                                                                                                                               Tatem, Joanne M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Weeks-Levy, Carolyn L.
VENTION: METHODS FOR PRODUCING RNA VIRUSES
                                                                                                                                                                                                                                                                                                                               Racaniello, Vincent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tatem, Joanne M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Racaniello, Vincent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cooper & Dunham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
                                                                                                                                                                                                                                                                           /y, Carolyn L.
METHODS FOR PRODUCING RNA VIRUSES FROM
                                                                                                                                                                                        Dunham
of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08/461,503
JS/08/465,250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        36607-D-PCT-US
                                                                                                                                                                                        LLP
Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3e+02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2206;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

```
CURRENT APPLICATION NUMBER: US/09/113,309A
CURRENT FILING DATE: 1998-07-10
NUMBER OF SEO ID NOS: 19
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 2
LENGTH: 365
TYPE: PRT
ORGANISM: Homo sapiens
Query Match
Best Local Similarity
Thes 5; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
""" onserve
                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 8
5185254-4
;Patent No. 5185254
                                                                                                                                                                                                                                                                                                                          US-09-113-309-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5185254-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY: linear; MOLECULE TYPE: protein US-08-465-250-2
                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Zhou, Shibin
APPLICANT: Zawei, Leigh
APPLICANT: Vogelstein, Bert
APPLICANT: Kinzler, Kenneth
TITLE OF INVENTION: Human Fast-1 Gene
FILE REFERENCE: 01107.10898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO:4:
                                                                                                                                                                                                                                                                                            sequence 2, Application US/09113309A
Patent No. 6110738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/V
FILING DATE: 29-DEC-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: LINNENBACH, ALBAN
TITLE OF INVENTION: GENE FAMILY OF TUMOR-ASSOCIATED ANTIGENS
NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1449 EALFOG 1454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 2206 amino aci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE/DOCKET NUMBER: 36
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 278-0400
                                                                                                                                                                                                                                                                                                                                                                              233 ESLFQG 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity 100 les 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                          1 EALFOG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TORNEY/AGENT INFORMATION: NAME: White, John P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amino acid
GY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2206 amino acids
              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (212) 391-0525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      John P. 28,678
                           90.0%;
83.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                              90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             us/07/291,583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   36607-E-PCT-US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
           Score 27; DB 3; Pred. No. 96; l; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 27; DB Pred. No. 84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.3e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
            0
                                                                                                                                                                                                                                                                                                                                                                                                                                  0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 323;
                                     Length 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2206;
            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
          0;
                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
RESULT 12
US-09-548-372D-62
Sequence 62, Application US/09548372D
Patent No. 6420534
                                                                                                   밁
                                                                                                                                 δõ
                                                                                                                                                  Query Match
Best Local Similarity
"stches 5; Conserva
                                                                                                                                                                                                                                ; LENGTH: 365
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-562-332-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
"-+ohes 5; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; LENGTH: 365
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-521-109-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 10
US-09-521-109-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Zhou, Shibin
APPLICANT: Zawel, Leigh
APPLICANT: Vogelstein, Bert
APPLICANT: Kinzler, Kenneth
TITLE OF INVENTION: Human Fast-1 Gene
FILE REFERENCE: 01107.10898
CURRENT APPLICATION UNBER: US/09/521,109
CURRENT FILING DATE: 2000-03-07
                                                                                                                                                                                                                                                                                              SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE:
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2, Application US/09521109 Patent No. 6225441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 09/11.
PRIOR FILING DATE: 1998-07-10
NUMBER OF SEQ ID NOS: 19
SOFTWARE: FRACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Requence 2, Application US/09562332 Patent No. 6372434
                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS:
SOFTWARE: FastSEQ for
                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/562,332
CURRENT FILING DATE: 2000-05-01
PRIOR APPLICATION NUMBER: 09/113,309
PRIOR FILING DATE: 1998-07-10
                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Vogelstein, Bert
APPLICANT: Kinzler, Kenneth
TITLE OF INVENTION: Human Fast-1 Gene
FILE REFERENCE: 01107.10898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Zhou, Shibin
APPLICANT: Zawel, Leig
                                                                                                 328 DALFQG 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          328 DALFQG 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 328 DALFQG
                                                                                                                                 1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zawel, Leigh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 333
                                                                                                                                                                                                                                                                                                               for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UMBER: 09/113,309
1998-07-10
                                                                                                                                                                                 90.0%;
83.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        90.0%;
                                                                                                                                                                                 Score 27;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 27;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ore 27; DB 4; Length 365; ed. No. 96; Mismatches 0; Indels
                                                                                                                                                                                 DB 4;
96;
                                                                                                                                                                                              Length 365;
                                                                                                                                                                Indels
                                                                                                                                                              <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
```

0;

0;

```
밁
                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
RESULT 14
                                                                                                                                                                                                                    US-09-548-367D-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 13
US-09-548-367D-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-548-372D-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Pa
SEQ ID NO 62
LENGTH: 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: GURNEY ET AL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 62, Appli
Patent No. 6440698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: ALZHEIMER'S DISEASE SECRETASE, APP SUBSTRATES THEREFOR AND USES FILE OF INVENTION: THEREOF FILE OF INVENTION: THEREOF FILE REFERENCE: 29915/62801

CURRENT APPLICATION NUMBER: US/09/548,372D

CURRENT FILING DATE: 2000-04-12

PRIOR APPLICATION NUMBER: US 60/155,493

PRIOR FILING DATE: 1999-09-23

PRIOR FILING DATE: 1999-09-23

PRIOR FILING DATE: 1999-09-23

PRIOR FILING DATE: 1999-09-23

PRIOR APPLICATION NUMBER: PS/209/20881

PRIOR APPLICATION NUMBER: US 60/101,594

PRIOR FILING DATE: 1999-09-23

PRIOR FILING DATE: 1999-09-24

PRIOR FILING DATE: 1999-09-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 60/155,493
PRIOR ETLING DATE: 1999-09-23
PRIOR EFLING DATE: 1999-09-23
PRIOR FILING DATE: 1999-09-23
PRIOR PPLICATION NUMBER: PCT/US99/20881
PRIOR FILING DATE: 1999-09-23
PRIOR PILING DATE: 1999-09-23
PRIOR APPLICATION NUMBER: US 60/101,594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/548,367D CURRENT FILING DATE: 2000-04-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: ALZHEIMER'S DISEASE SECRETASE, APP SUBSTRATES THEREFOR AND USES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 73
                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 73
                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILE REFERENCE: 29915/6280H
                                                                                                                                                                                                                                                                      TYPE: PRT ORGANISM: Artificial sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: Synthetic peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Artificial sequence FEATURE:
                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                   OTHER INFORMATION: Synthetic peptide
                                                                                                                                                                                                                                                                                                                                  TWARE: PatentIn version 3.1 ID NO 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity 83.3
les 5; Conservative
                                                                                                                                      Local Similarity es 5; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 EALFQG 6
                                                     EVLFQG
                                                                                                 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GURNEY ET AL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/09548367D
                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                1998-09-24
                                                                                                                                                    86.7%;
83.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86.7%;
83.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 26;
Pred. No.
                                                                                                                                                           Score 26;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 8;
                                                                                                                                                                         Length 8;
                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                    0;
                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

B

Sequence 185, Application US/08477346 Patent No. 6262023

GENERAL INFORMATION:

APPLICANT: Mochly-Rosen, Daria APPLICANT: Ron, Dorit

APPLICANT: RON, DOTITITLE OF INVENTION: WD-40 - TITLE OF INVENTION: Thereof NUMBER OF SEQUENCES: 265

WD-40 - Derived Peptides and Uses

CORRESPONDENCE ADDRESS:

ADDRESSEE:

E: Morrison & Foerster 2000 Pennsylvania Avenue, NW

COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk

20006-1812

COUNTRY:

Washington

몽

```
US-08-190-802A-185
US-08-477-346-185
                                                                                                                                                                                                 US-08-190-802A-185
                                                                                                                                Matches
                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHARACTERISTICS:
LENGTH: 32 amin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/0
FILING DATE: 01-FEB-1994
CLASSIFICATION: 530
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ent No.
                                                                                                                                                                                                                                                 ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER: 86
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                   HYPOTHETICAL:
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Mochly-Rosen, Daria
APPLICANT: Ron, Dorit
TITLE OF INVENTION: WD-40 - Derived Peptides and Uses
TITLE OF INVENTION: Thereof
                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Dehlinger & Associates STREET: P.O. Box 60850 CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: Fabian, Gary R. REGISTRATION NUMBER: 33,875
                                                                21 EGLFQG 26
                                                                                                                              Local Similarity
les 5; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                INDIVIDUAL ISOLATE:
                                                                                                                                                                                                                                                                                                                   TOPOLOGY:
                                                                                               1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185, Application US/08190802A
5. 5519003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94306-0850
                                                                                                                                                                                                                                                                                                                                 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                unknown
                                                                                                                                                                                                                                                                                                                                                                                                                   (415) 324-0880
                                                                                                                                                                                                                                                                                              peptide
                                                                                                                                                86.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Release #1.0, Version #1.25
                                                                                                                                                                                                                Insulin-like growth factor bind.
pro. complex-rat rI, Fig. 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US/08/190,802A
                                                                                                                                                                                                                                                                                                                                                                                                                                                    8600-0139
                                                                                                                                              Score 26;
Pred. No.
                                                                                                                                                               Length 32;
                                                                                                                                Indels
                                                                                                                                0;
```

```
COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/477,346

FILING DATE: 07-JUN-195
CLASSIFICATION DATA:
APPLICATION UNMER: 08/487,072
FILING DATE: 07-JUN-195
FILING DATE: 07-JUN-195
APPLICATION UNMER: 250-0025.20
FILING DATE: 07-JUN-195
APPLICATION UNMER: 250-0025.20
FILING DATE: 07-JUN-195
APPLICATION UNMER: 250-0025.20
FILING DATE: 07-JUN-195
APPLICATION UNMER: 250-0025.20
FILING DATE: 07-JUN-195
APPLICATION UNMER: 250-0025.20
FILING DATE: 07-JUN-195
APPLICATION UNMER: 250-0025.20

TELECHOME: (202) 887-1500
FILING DATE: (202) 887-1500
FILING DATE: 100: 185:
SEQUENCE CHARACTERISTICS:
FILING DATE: PSPLIDE
TYPE: PSPLIDE
HYPOTHETICAL: NO
ANTI-SENSE: NO
ORIGINAL SOURCE: Insulin-like growth factor bind.
INDIVIOUAL ISOLATE: Insulin-like growth factor bind.
INDIVIOUAL ISOLATE: pro. complex-rat rI, Fig. 3
US-08-477-246-185
GOUSTY MATCH
BEST LOCAL SIMILARITY 88.78; Score 25; DB 4; Length 32;
Best Local Similarity 88.78; Score 25; DB 4; Length 32;
Best Local Similarity 88.78; Pred. No. 12;
Matches 5; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
DATE: SENSE: NO
ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURCE: ORIGINAL SOURC
```

```
Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OM protein -
                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq length: 0 seq length: 2000000000
           protein search, using sw model
                                                                                                                                                                                                                                                                                                                    Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                          10:
11:
12:
14:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BLOSUM62
Gapop 10.0 , Gapext 0.5
        375593 seqs, 99172665 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 EALFOG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-081-408-6
30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   May 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Published_Applications_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                : /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
1: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
1: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
2: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
3: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
4: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /cgn2_6/ptodata/1/pubpaa/PCT
                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2003, 11:37:59 ; Search time 0.955969 Seconds (without alignments) 622.443 Million cell updat
        /ptodata/1/pubpaa/US08_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                    DВ
3 US-10-081-408-6

3 US-10-081-408-20

9 US-10-097-340-314

10 US-09-864-761-48941

10 US-09-864-761-48941

10 US-09-885-242-10711

9 US-09-889-414-62

10 US-09-794-927-62

10 US-09-794-927-62

10 US-09-794-743-62

10 US-09-794-748-62

10 US-09-794-748-62

10 US-09-794-925-62

10 US-09-794-925-62

10 US-09-794-925-62

10 US-09-794-925-62

10 US-09-794-925-62

9 US-10-057-789-64

9 US-10-057-789-64

9 US-10-057-789-64

9 US-10-057-789-64
                                                                                                                                                                             10
                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _NEW_PUB.pep: *
Sequence 5, Appli
Sequence 20, Appl
Sequence 48941, A
Sequence 10711, A
Sequence 62, Appl
Sequence 62, Appl
Sequence 62, Appl
Sequence 62, Appl
Sequence 62, Appl
Sequence 62, Appl
Sequence 63, Appl
Sequence 63, Appl
Sequence 63, Appl
Sequence 64, Appl
Sequence 63, Appl
Sequence 64, Appl
Sequence 63, Appl
Sequence 63, Appl
Sequence 64, Appl
Sequence 64, Appl
Sequence 64, Appl
Sequence 61, Appl
Sequence 61, Appl
Sequence 61, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cell updates/sec
                                                                                                                                                                                                                                                                                                              Description
                                                                                                                                                        В
                                                                                                                                                                                  20
                                                                                                                                                                                                                Matches
                                                                                                                                                       \vdash
```

444	40 41 42	36	332	222222	20 22 22 23 23 23 23 23 23 23 23 23 23 23
22.5) 2 2 2 2 3 3 5 5 5 5	22225	, , , , , , , , , , , , , , , , , , ,	2 N N N N N N N	00000 00000
83.0	8 8 8 8 8 3	88888	3 8 8 8 8 8 3	86.7 86.7 86.7	86.7 86.7
182 183	178 179 180 181	63 77 96	511199	12/ 201 202 1024 1024 1204	20 20 113 126
9019	9999	910	9 2 10	10 010	900
US-10-131-241-54 US-09-998-831-14 US-10-080-797-1	US-10-131-241-60 US-10-131-241-57 US-10-131-241-56 US-10-131-241-55	US-09-872-540A-1 US-09-822-540A-1 US-09-879-572A-30 US-09-864-761-34961 US-09-764-891-4364	US-09-796-294-21 US-09-796-294-45 US-09-879-572A-23 US-09-879-572A-25 US-09-879-572A-25	US-09-848-798-139 US-09-815-242-5217 US-09-764-864-1126 US-09-864-921-97 US-09-841-739-2 US-09-841-739-5	US-10-212-628-61 US-10-212-628-62 US-09-738-599-20 US-09-848-798-152
Sequence 54, Appl Sequence 14, Appl Sequence 1, Appli	50, Ap 56, Ap 55, Ap	Sequence 32, Appl Sequence 1, Appll Sequence 30, Appl Sequence 34961, A Sequence 4364, Ap	21, 23, 25,	, בו השמקק	Sequence 61, Appl Sequence 62, Appl Sequence 20, Appl Sequence 152, App

ALIGNMENTS

```
RESULT 2
US-10-081-408-20
                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: Protease cleavage site US-10-081-408-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-081-408-6
Sequence 20, Application US/10081408 Patent No. US20020160482A1 GENERAL INFORMATION:
APPLICANT: Abrahms,n, Lars
APPLICANT: Nilsson, Joakim
TITLE OF INVENTION: METHODS FOR PRO
                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: F
SEQ ID NO 6
LENGTH: 6
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 6, Application US/10081408 Patent No. US20020160482A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                    Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Abrahms, n, Lars
APPLICANT: Nilsson, Joakim
TITLE OF INVENTION: METHODS FOR PROTEIN PURIFICATION
FILE REFERENCE: 13425-053001
CURRENT FILING DATE: 2002-02-21
CURRENT FILING DATE: 2002-02-21
CURRENT FILING DATE: 2002-02-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: SE 0100625-3
PRIOR FILING DATE: 2001-02-23
PRIOR PPLICATION NUMBER: US 60/272,247
PRIOR FILING DATE: 2001-02-28
NUMBER OF SEQ ID NOS: 20
SOFTMARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                1 EALFQG 6
                                                                                                                                                                                             EALFQG
                                                                                                                                                                                                                                                                     Similarity 6; Conserv
                                                                                                                                                                                             σ
                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                  100.0%;
   FOR PROTEIN PURIFICATION
                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                 Score 30; DB 9;
Pred. No. 3.3e+05;
Mismatches 0;
                                                                                                                                                                                                                                                                                                  Length 6;
                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                 0,
```

```
; OTHER INFORMATION: Recombinant construct US-10-081-408-20
SEQ ID NO 314
LENGTH: 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 20
LENGTH: 998
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 314, A Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
                                  NUMBER OF SEQ ID N
SOFTWARE: FastSEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/10/081,408 CURRENT FILING DATE: 2002-02-21 PRIOR APPLICATION NUMBER: SE 0100625-3 PRIOR FILING DATE: 2001-02-23 PRIOR APPLICATION NUMBER: US 60/272,247 PRIOR FILING DATE: 2001-02-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: John MONAHAN
                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-097-340-314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILE REFERENCE: 13425-053001
                                                                                                                                                                                                                                                                                                                                                   ITLE OF INVENTION: Nucleic Acid Molecules and Proteins For The Identification, ITLE OF INVENTION: Assessment, Prevention, and Therapy of Ovarian Cancer ILE REFERENCE: MRI-030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PPLICANT:
                                                                                                                                                                                                                                                                                                                   JRRENT APPLICATION NUMBER: US/10/097,340
JRRENT FILING DATE: 2002-03-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       259 EALFQG 264
                                                                                                                                                                                   APPLICATION NUMBER: 60/276,026
FILING DATE: 2001-03-14
APPLICATION NUMBER: 60/324,967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 EALFQG 6
                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/276,025
FILING DATE: 2001-03-14
APPLICATION NUMBER: 60/325,149
                                                                                                                      APPLICATION NUMBER: 60/
                                                                                                                                                                          FILING DATE: 2001/09/26
                                                                                     APPLICATION NUMBER: 60/323,580
                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Manjula GANNAVARAPU
Sebastian HOERSCH
Shubhangi KAMATKAR
                                                                                                                                                                                                                                                                                                                                                                                                      Karen GLATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gordon B. MILLS
Robert C. BAST, Jr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Steve G KOVATS
Rachel E MEYERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Steve G.
                                                                                                                                                                                                                                                                                                                                                                                                                                         Rosemarie SCHMANDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Peter VEIBY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Michael MORRISEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/10097340 o. US20030087250A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
illarity 100.0%;
Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OLANDT
                                                                                                       2001-09-26
                                                                      2001-09-19
                                                                                                                                                                                                                                                                                                             2002-03-
                                                                                                                      60/325,102
                                                                                                                                                      60/311,732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 9;
92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
```

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILE REFERENCE: AGOMICA:X-1
CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR FILING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR FILING DATE: 2000-08-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 4
US-09-864-761-48941
                                                                                                                                           SEQ ID NO 48941
LENGTH: 533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 48941, Application US/09864761 Patent No. US20020048763A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                SOFTWARE: Annomax Sequence Listing Engine vers. 1.1
                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: US 09/774,203
      OTHER INFORMATION: MAP TO AC008174.1
OTHER INFORMATION: EXPRESSED IN BT47
OTHER INFORMATION: EST_HUMAN HIT: BF
OTHER INFORMATION: SWISSPROT HIT: P1
                                                                                   FEATURE:
                                                                                                ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      233 ESLFOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 EALFOG
                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: PCT/US01/00670 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 60/236,359
FILING DATE: 2000-09-27
APPLICATION NUMBER: PCT/US01/00666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: GB 24263.6 FILING DATE: 2000-10-04
                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00664
                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 60/234,687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: PCT/US01/00668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: PCT/US01/00661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Then, Wensheng
                                                                                                                                                                                                                                                                                                                                                                                                                                       NG DATE: 2001-01-30
ICATION NUMBER: PCT/US01/00662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATION NUMBER: PCT/US01/00665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATION NUMBER: PCT/US01/00669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                  2000-06-30
                                                                                                                                                                                                                                                                                                    2000-09-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2001-01-30
EXPRESSED IN BT474, SIGNAL = 0.63
EST_HUMAN HIT: BF129490.1, EVALUE 1.30e+00
SWISSPROT HIT: P13666, EVALUE 6.40e-02
                                                                                                                                                                                                                                                                                                                                                                                                                         2001-01-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2001-01-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       David K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PCT/US01/00663
                                                                                                                                                                                                                                                                              09/608,408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. 1.4e+02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACID PROBES USEFUL FC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
```

Query Match Best Local Similarity

90.0%;

Score 27; Pred. No.

DB 10; 2.4e+02;

Length 533;

Matches

Conservative

```
US-09-884-696-21; Sequence 21, Application US/09884696; Publication No. US20030035809A1
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Enterococcus faecalis
US-09-815-242-10711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-815-242-10711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR PRIOR PRILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR PRILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR PRILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: Fast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 10711, Application US/09815242 Patent No. US20020061569A1
APPLICANT: ANGELÓS, JOHN A
APPLICANT: HESS, JOHN F
TITLE OF INVENTION: MORAXELLA BOVIS CYTOTOXIN, ITITLE OF INVENTION: AND VACCINES FOR PREVENTION
TITLE OF INVENTION: BOVIS INFECTIONS
FILE REFERENCE: 481.06
CURRENT APPLICATION NUMBER: US/09/884,696
CURRENT FILING DATE: 2001-06-19
NUMBER OF SEQ ID NOS: 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: XU, H. Howard
APPLICANT: XU, H. Howard
TITLE OF INVENTION: Identification of Essential Genes in
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA, 011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
                                                                                                                                                                                       APPLICANT: GEORGE, LISLE W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IOR APPLICATION NUMBER: 60/269,308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     494 ESLFQG 499
                                                                                                                                                                                                                                                                                                                                                               89 EAVFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                    1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/257,931
                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 83.: 5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ohlsen, Kari L.
Zyskind, Judith W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Carr, Grant J.
Yamamoto, Robert T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Trawick, John D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                               94
                                                                                                                                                                                                                                                                                                                                                                                                                                                             90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 27;
Pred. No.
1; Mismatc
                                                                                                     PREVENTION AND TREATMENT OF MORAXELLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             .8e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 631;
                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
Query Match
Best Local Similarity
"head 5; Conserv."
                                                                                                                                                                                                                                                   RESULT 8
US-09-794-927-62
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; OTHER INFORMATION: Description of Artificial Sequence: synthetic
US-09-869-414-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Escherichia coli
US-09-884-696-21
APPLICANT: Parodi, Luis A.

APPLICANT: Yan, Riqiang
TITLE OF INVENTION: ALZHEIMER'S DISEASE SE
TITLE OF INVENTION: USES
TITLE OF INVENTION: THEREFOR
FILE REFERENCE: 28341/6280FG
CURRENT APPLICATION NUMBER: US/09/794,927
CURRENT FILING DATE: 2001-02-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 62, App
Publication No.
                                                                                                                                                                                                Sequence 62, Application of the No. US20010016324A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: Patentin Ver.
SEQ ID NO 21
LENGTH: 707
                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 62
                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: 60/155,493
PRIOR FILING DATE: 199-09-23
PRIOR APPLICATION NUMBER: 09/404,133
PRIOR FILING DATE: 1999-09-23
                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT FILING DATE: 2001-06-27 PRIOR APPLICATION NUMBER: 09/416,901 PRIOR FILING DATE: 1999-10-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Beinkowski et al.
TITLE OF INVENTION: ALZHEIMER'S DISEASE SECRETASE, APP SUBSTRATES THEREFOR, AND I
                                                                                                                                          APPLICANT: Bienkowski, Michael J
APPLICANT: Heinrikson, Robert L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 1999-09-23
PRIOR APPLICATION NUMBER: 60/101,594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: PCT/US99/20881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/09/869,414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 70
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        115 EALYOG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 EALFQG 6
                                                                                                                                                                                                                                                                                                                      2 EVLFOG
                                                                                                                                                                                                                                                                                                                                                       1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LING DATE: 1998-09-24
                                                                                                                                                                                                                                                                                                                                                                                         Similarity 83. 5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PatentIn Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/09869414
No. US20030077226A1
                                                                                                                                                                                Gurney, Mark E
                                                                                                                                                                                                                                 Application US/09794927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 27; DB 9;
Pred. No. 3.2e+02;
                                                                                                                                                                                                                                                                                                                                                                                                          Score 26;
Pred. No.
                                                                                         DISEASE SECRETASE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                          DB 9;
3.3e+05;
                                                                                                                                                                                                                                                                                                                                                                                                                        Length 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 707
                                                                                          APP SUBSTRATES THEREFOR,
                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
```

09/416,901

```
밁
                           Q
                                                                                                                  : OTHER INFORMATION: Description of Artificial Sequence: synthetic US-09-795-847-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                         NUMBER OF SEQ ID NOS
SOFTWARE: PatentIn v
SEQ ID NO 62
LENGTH: 8
                                                          Matches
                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Heinrikson, Robert L.
APPLICANT: Parodi, Luis A.
APPLICANT: Yan, Rigiang
TITLE OF INVENTION: ALZHEIMER'S
TITLE OF INVENTION: USES
TITLE OF INVENTION: THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/795,847
CURRENT FILING DATE: 2001-02-28
PRIOR APPLICATION NUMBER: 09/416,901
PRIOR FILING DATE: 1999-10-13
                                                                                                                                                                          LENGTH: 8
TYPE: PRT
                                                                                                                                                                                                                                                                                                                             PRIOR FILENCE .... BUZZERION NUMBER: 60/J
                                                                                                                                             ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 equence 62,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             09-795-847-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/:
PRIOR FILING DATE: 1998-09-24
WITMER OF SEO ID NOS: 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 8
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tent No. US20010018208A1
                                                                                                                                                                                                                                                                                                                  RIOR APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION: Description of Artificial Sequence: synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                      IOR FILING DATE:
                                                                      Local
2 EVLFQG 7
                         1 EALFOG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
les 5; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 EVLFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 EALFQG 6
                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/
FILING DATE: 1998-09-24
                                                                                                                                                                                                                                                                                       APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 1999-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION:
                                                       Similarity
5; Conserv
                                                                                                                                                                                                                 PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bienkowski, Michael J.
Heinrikson, Robert L.
Parodi, Luis A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/09795847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gurney, Mark E
                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                    28341/6280DE
                                                                                                                                                                                                                                                                         1999-09-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1999-09-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1999-09-23
                                                                                                                                                                                                                                                                                                      999-09-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALZHEIMER'S DISEASE SECRETASE, APP SUBSTRATES THEREFOR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1999-10-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1999-09-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86.7%;
83.3%;
                                                                                                                                                                                                                                                                                                                                             60/155,493
                                                                                                                                                                                                                                                                                                                  09/404,133
                                                                                                                                                                                                                                                                                     PCT/US99/20881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/101,594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PCT/US99/20881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09/404,133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/155,493
                                                                   Score 26;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 26; [
Pred. No. 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. 3.3 
; Mismatches
                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 10;
3.3e+05;
                                                                                 DB 10;
                                                                  3e+05;
                                                                             Length 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 8
                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AND
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                               CURRENT APPLICATION NUMBER: US/09/794,748
CURRENT FILING DATE: 2001-02-27
PRIOR APPLICATION NUMBER: 09/416,901
PRIOR FILLING DATE: 1999-10-13
PRIOR APPLICATION NUMBER: 60/155,493
PRIOR FILLING DATE: 1999-09-23
PRIOR APPLICATION NUMBER: 09/404,133
PRIOR FILLING DATE: 1999-09-23
PRIOR FILLING DATE: 1999-09-23
PRIOR APPLICATION NUMBER: PCT/US99/20881
PRIOR FILLING DATE: 1999-09-23
PRIOR FILLING DATE: 1999-09-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
"htches 5; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; OTHER INFORMATION: Description of Artificial Sequence: synthetic
US-09-794-743-62
                                                                                                                                                                                                                                         APPLICANT: Heinrikson, Rol
APPLICANT: Parodi, Luis A.
APPLICANT: Yan, Riqiang
TITLE OF INVENTION: ALZHEI
TITLE OF INVENTION: USES
TITLE OF INVENTION: THEREI
FILE REFERENCE: 28341/628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: I
SEQ ID NO 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR FILING DATE: 1999-10-13
PRIOR APPLICATION NUMBER: 60/15
PRIOR FILING DATE: 1999-09-23
PRIOR FILING DATE: 1999-09-23
PRIOR APPLICATION NUMBER: PCT/US
PRIOR FILING DATE: 1999-09-23
PRIOR FILING DATE: 1999-09-23
PRIOR FILING DATE: 1999-09-23
PRIOR FILING DATE: 1999-09-23
                  PRIOR APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09-794-748-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  equence 62, Application US/09794748 atent No. US20020037315A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: ALZHEIMENTITLE OF INVENTION: USES THEREFOR THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: PRIOR FILING DATE: 1999-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRI TYPE: ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 EVLFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1999-09-23
APPLICATION NUMBER: 60/
FILING DATE: 1998-09-24
                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                         Bienkowski, Michael J.
Heinrikson, Robert L.
                                                                                                                                                                                                                                                                                                                                                                                                 Gurney, Mark E
                                                                                                                                                                                                                                                                                                                                         Parodi, Luis A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bienkowski, Michael
Heinrikson, Robert I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Parodi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gurney, Mark E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/09794743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                       ON: THEREFOR 28341/6280JL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rigiang
1998-09-24
                                                                                                                                                                                                                                                                                       ALZHEIMER'S DISEASE SECRETASE, APP SUBSTRATES THEREFOR, AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ALZHEIMER'S DISEASE SECRETASE, APP SUBSTRATES THEREFOR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PCT/US99/20881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09/404,133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/155,493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/101,594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 26; DB 10;
Pred. No. 3.3e+05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .3e+05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
Query Match
Best Local Similarity
""" 5; Conserv:
                                                                                                                                  RESULT 13
US-09-681-442-62
; Sequence 62, Application US/09681442
; Patent No. US20020081634A1
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                   ; OTHER INFORMATION: Description of Artificial Sequence: synthetic US-09-794-925-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; OTHER INFORMATION: Description of Artificial Sequence: synthetic US-09-794-748-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/09/794,925
CURRENT FILING DATE: 2001-02-27
PRIOR APPLICATION NUMBER: 09/416,901
PRIOR FILING DATE: 1999-10-13
PRIOR APPLICATION NUMBER: 60/155,493
PRIOR APPLICATION NUMBER: 09/404,133
PRIOR APPLICATION NUMBER: 09/404,133
PRIOR FILING DATE: 1999-09-23
PRIOR FILING DATE: 1999-09-23
                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: P.
SEQ ID NO 62
LENGTH: 8
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 62
LENGTH: 8
                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                      APPLICANT: Gurney, mark E.
APPLICANT: Bienkowski, Michael J.
APPLICANT: Heinrikson, Robert L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Patent No. US20020064819A1
                                                          APPLICANT:
                                             APPLICANT:
           TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IITLE OF INVENTION: ALLHEIMER'S DISEASE SECRETASE, APP SUBSTRATES THEREFOR, AND USE:
IITLE OF INVENTION: THEREFOR
FILE REFERENCE: 28341/6280HI
                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity es 5; Conserv
                                                                                                                                                                                                                                                                     1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: PCT, FILING DATE: 1999-09-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EVLFQG
                                                                                                                                                                                                                                       EVLFQG
                          INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PatentIn Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yan, Rigiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bienkowski, Michael J.
Heinrikson, Robert L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/09794925
                                                        Parodi, Luis A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gurney, Mark E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Parodi, Luis A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                     Conservative
           ALZHEIMER'S DISEASE SECRETASE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-09-24
                                                                                                                                                                                                                                                                                                                  86.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PCT/US99/20881
                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                  Score 26;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 26;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .3e+05;
                                                                                                                                                                                                                                                                                                                               Length 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 8;
                       APP SUBSTRATES THEREFOR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                     AND USES
RESULT 15
US-10-057-789-64
; Sequence 64, Application US/10057789
; Publication No. US20030082522A1
```

```
밁
                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                    CTHER INFORMATION: Synthesized Peptide US-10-057-789-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; OTHER INFORMATION: Description of Artificial Sequence: synthetic US-09-681-442-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: 09/416,901
PRIOR FILING DATE: 1999-10-13
PRIOR PPLICATION NUMBER: 60/155,493
PRIOR FILING DATE: 1999-09-23
PRIOR APPLICATION NUMBER: 09/404,133
PRIOR FILING DATE: 1999-09-23
PRIOR PPLICATION NUMBER: PCT/US99/20881
PRIOR FILING DATE: 1999-09-23
                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 311
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 63
                                                                            Matches
                                                                                            Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 63, Application US/10057789 Publication No. US20030082522A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: P
SEQ ID NO 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: PAUL Haynes
APPLICANT: Jing Wei
APPLICANT: John Yates
APPLICANT: John Yates
APPLICANT: Nancy Andon
TITLE OF INVENTION: DIFFERENTIAL LABELING FOR QUANTITATIVE
TITLE OF INVENTION: ANALYSIS OF COMPLEX PROTEIN MIXTURES
FILE REFERENCE: MADII. 022A
CURRENT APPLICATION NUMBER: US/10/057,789
CURRENT FILING DATE: 2002-06-28
CURRENT FILING DATE: 2002-06-28
                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 60/264,576
PRIOR FILING DATE: 2001-01-26
PRIOR APPLICATION NUMBER: US 60/305,232
PRIOR FILING DATE: 2001-07-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILE REFERENCE: 28341/6280FG
CURRENT APPLICATION NUMBER:
CURRENT FILING DATE: 2001-G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 60/101,594
                                                                                                                                                                                    TYPE: PRT ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity tes 5; Conserv
                                                                         Local Similarity tes 5; Conserv
1 ||||
7 EVLFQG 12
                                      1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE: 28341/6280FG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PatentIn Ver. 2.0
                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-09-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86.7%;
83.3%;
                                                                                            86.7%;
83.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US/09/681,442
                                                                          ..
                                                                                          Score 26;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 26; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 10;
                                                                                                               DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3e+05;
                                                                                                           Length 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bength 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                          Indels
                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
GENERAL INFORMATION:
APPLICANY: Jain Weil
APPLICANY: Jain Weil
APPLICANY: John Yates
APPLICANY: John Yates
APPLICANY: John Yates
APPLICANY: John Yates
APPLICANY: John Yates
APPLICANY: John Yates
APPLICANY: John Yates
APPLICANY: John Yates
APPLICANY: John Yates
APPLICANY: John Yates
APPLICANY: John Yates
CURRENT APPLICATION NUMBER: US/10/057,789
CURRENT APPLICATION NUMBER: US/06/264,576
PRIOR APPLICATION NUMBER: US/06/264,576
PRIOR FILING DATE: 2001-07-13
NUMBER OF SED IN MOS: 311
SOFTMARE: FastsEQ for Windows Version 4.0
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 64
SED ID NO 6
```

```
Result
                                                                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                               Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OM protein -
                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                 Maximum
                                                                                                                                                                                                                                                                                                                                                                        Minimum
                                                                                                                                                                                                                        ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                DB DB
                                                                                                                                                                                                                        Score
                                                                                                                                                                                                                                                            ŝ
                                                                                                                                                                                                                                                                                                                                                               seq
                                                                                                                                                                                                                                                          No. is the number of results predicted by chance to have a greater than or equal to the score of the result being printed, s derived by analysis of the total score distribution.
protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                               length: 0
length: 2000000000
                                                                                                                                                                                                                       Query
Match
                                                                                                                                                                                                                                                                                        PIR_73:*
1: pir1:
2: pir2:
3: pir3:
4: pir4:
                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-081-408-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    мау
283224 seqs,
                                                                                                                                                       100
100
100
100
                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                                        EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Copyright
                                                                                                                                                                                                                                                                                               pir2:*
pir3:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20, 2003, 11:09:54; Search time 0.231502 Seconds (without alignments) 2491.578 Million cell updates/sec
                                                                                                                                                                                                                                                                                                              pirl:*
                                                                                                                                                                                                                       Length DB
GenCore version (c) 1993 - 2003
                                                                                                                                                                                                                                                                                                                                                                                                    96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                                   Gapext 0.5
                                        S03822
GNNY1P
GNNY5P
S09553
                                                                      GNNY 4 P
GNNY 27
GNNY 21
                                                                                           GNNYE7
                                                                                                          GNNYB3
GNNYBT
JQ2021
GNNYSY
GNNYSH
S44194
S44251
S52919
                                                                                                                                                                                   T46183
S15040
GNNYEC
GNNYBE
      A8751
E8315
                    GNNY3P
A48548
                                    GNNY 2P
                                                                                                                                                                     GNNYB4
                                                                                                                                                                            GNNYBI
                                                                                                                                                                                                                        IJ
                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Compugen Ltd
          polyprotein - echo polyprotein (1A, 1) genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein genome polyprotein
                                                                                                                                                                  genome polyprotein
genome polyprotein
genome polyprotein
genome polyprotein
                                                                                                                      genome polyprotein genome polyprotein echo
                                                                                                                                                                                                                      Description
                                                                                                                                              genome
                                                                                                                                                    genome polyprotein
                                                                                                                                                                                                 pleiotropic drug
                                                                                                                                                                                                       zinc proteinase (E
                                                                                                                                              polyprotein
```

4.	44	43	42	41	40	39	38	37	36	ω 5	34	ω	32	ω	30	
27	27	27	27	27	27	27	27	27	27	27	27	27	27	28	28	
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	93.3	93.3	
614	452	443	442	395	380	338	323	272	256	227	201	117	117	2164	445	
Ν	N	N	N	Ν	N	N	-4	N	N	N	N	N	N	ш	N	
B43935	S22199	T11804	T18917	H70385	T40541	A82209	A48149	S57460	T36793	AB2008	A82466	G95924	A95907	GNNY89	AG1556	
spaT protein - Bac	imidazoleglycerol-	translation initia	hypothetical prote	tryptophan-tRNA li	hypothetical prote	conserved hypothet	carcinoma-associat	cytochrome-c oxida	probable oxidoredu		hypothetical prote	hypothetical prote	probable protein i	genome polyprotein	Na+-transporting A	

ALIGNMENTS

```
Pleiotropic drug resistance control protein PDR6 - yeast (Saccharomyces cerevisiae)
N;Alternate names: protein G3713; protein YGL016w
C;Species: Saccharomyces cerevisiae
C;Date: 28-May-1993 #sequence_revision 28-May-1993 #text_change 21-Jul-2000
C;Accession: S15040; S64018
R;Chen, W; Balzi, E.; Capieaux, E.; Choder, M.; Goffeau, A.
Yeast 7, 287-299, 1991
A;Title: The DNA sequencing of the 17 kb HindIII fragment spanning the LEU1 and ATE:
ntrolling pleiotropic drug resistance.
A;Reference number: S15040; MUID:91353083; PMID:1882553
A;Accession: S15040
A;Molecule type: DNA
A;Residues: 1-1081 <CHE>
A;CHE>
A;Cross-references: GB:S57895; NID:9234319; PIDN:AAB19613.1; PID:9234320
A;Rolecule type: DNA
A;Cross-references: GB:S57895; NID:9234319; PIDN:AAB19613.1; PID:9234320
A;Reference number: S64003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                zinc proteinase (EC 3.4.24.-) T8H10.70 - Arabidopsis $\partial haliana | N;Alternate names: insulysin homolog |
C:Species: Arabidopsis thaliana (mouse-ear cress) |
C:Date: 04-Feb-2000 #sequence_revision 04-Feb-2000 #text_change 17-Mar-2000 |
C:Accession: T46183 |
R:Benes, V: Rechmann, S: Borkova, D: Ansorge, W: Mewes, H.W.; Lemcke, K: Mayer submitted to the Protein Sequence Database, January 2000 |
A:Reference number: Z33014 |
A:Accession: T46183 |
A:Molecule type: DNA |
A:Residues: 1-989 <BEN> |
A:Residues: 1-989 <BEN> |
A:Comparison |
A:Experimental source: cultivar Columbia; BAC clone T8H10 |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:Genetics: Table |
C:G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
S15040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A:Introns: 48/3; 74/1; 96/3; 127/2; 152/1; 166/3; 3
A:Note: T8H10.70
C:Superfamily: insulysin
C:Keywords: hydrolase; metalloproteinase; zinc
F:71,75/Binding site: zinc (His) #status predicted
F:74/Active site: Glu #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Map position: 3
A; Map position: 3
A; Introns: 48/3; 74/1; 96/3; 127/2; 152/1; 166/3; 184/1; 225/1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          235 EALFOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity es 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; ilarity 100.0%; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           262/3; 317/1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
genome polyprotein - bovine enterovirus (strain VG-5-27)
N;Contains: coat protein VP1; coat protein VP2; coat protein VP3; coat protein VP4;
RNA-directed RNA polymerase (EC 2.7.7.48)
C;Species: bovine enterovirus
C;Date: 30-Jun-1989 #sequence_revision 30-Jun-1989 #text_change 16-Jun-2000
C;Accession: A29824
R;Earle, J.A.P.; Skuce, R.A.; Fleming, C.S.; Hoey, E.M.; Martin, S.J.
J. Gen. Virol. 69, 253-263, 1988
A;Title: The complete nucleotide sequence of a bovine enterovirus.
A;Accession: A29824; MUID:88117392; PMID:2828511
A;Accession: A29824; MUID:88117392; PMID:2828511
A;Accession: A29824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: GB:D10582; GB:D01068; NID:g465394; PIDN:BAA01439.1; PID:g465395 C;Superfamily: poliovirus genome polyprotein. C;Keywords: coat protein; core protein; genome-linked protein; nucleotidyltransferase; F;1-43/Product: coat protein ID (fragment) #status predicted <VPI>F;44-190/Product: core protein 2A #status predicted <2AP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Residues: 11081 <HEB>
A;Cross references: EMBL:Z72538; NID:g1322476; PID:e243847; PID:g1322477; MIPS:YGL016w A;Cross references: EMBL:Z72538; NID:g1322476; PID:e243847; PID:g1322477; MIPS:YGL016w A;Cenettal source: Strain S288C C;Genettas: A;Genet SGD:DR6 A;Cross references: SGD:SO002984; MIPS:YGL016w A;Map position: 7L C;Keywords: transmembrane protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F;708-729/Product: genome-linked protein vpg #status predicted <VPG>F;730-912/Product: proteipase #status predicted <PTS>F;913-1374/Product: RNA-directed RNA polymerase #status predicted <RPS>F;710/Binding site: phosphoryl-RNA (Tyr) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F;191-289/Product: core protein 2B *status predicted <2BP>F;290-618/Product: core protein 2C *status predicted <2CP>F;619-707/Product: protein 3A *status predicted <P3A>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;Auvinen, P; Hyypiae, T.
J. Gen. Virol. 71, 2133-2139, 1990
J. Gen. Virol. 71, 2133-2139, 1990
A;Title: Echoviruses include genetically distinct serotypes A;Reference number: A36642; MUID:91011360; PMID:2170575
A;Accession: A36642
A;Molecule type: genomic RNA
A;Residues: 1-1374 <AUV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genome polyprotein - echovirus 11 (strain Gregory) (fragment)
N;Contains: carboxyl end of coat protein 1D; core protein 2A; core protein :
C:Species: echovirus 11
C;Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 16-Jun-2000
C;Accession: A36642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F;365-381/Domain: transmembrane *status predicted F;540-556/Domain: transmembrane *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GNNYEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession: S64018
A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                      GNNYBE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      631 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity es 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
les 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 30; DB Pred. No. 49; D; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 30; DB Pred. No. 63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2; Length 1081;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41M2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 core protein 2B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              prot
                                                                                                                                                                                                                                                                                                            core
```

```
C;Superfamily: poliovirus genome polyprotein
C;Keywords: coat protein; core protein; genome-linked prote
F;1-69/Product: coat protein 1A *status predicted <Play
F;70-332/Product: coat protein 1B *status predicted <Plby
F;333-570/Product: coat protein 1C *status predicted <PlCy
F;571-848/Product: coat protein 1D *status predicted <PlCy
F;849-998/Product: core protein A *status predicted <C2Ay
T;640-1007/mn-along: core protein 2A *status predicted <C2Ay
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Cross-references: GB:D00214; NID:g2696866; PIDN:BAA24003.1 c) Superfamily: poliovirus genome polyprotein; C; Keywords: coat protein; core protein; genome-linked protein; E;1-69/Product: coat protein VP4 *status predicted <VP4> F;0-317/Product: coat protein VP2 *status predicted <VP2> F;0-317/Product: coat protein VP3 *status predicted <VP2> F;0-40/Product: coat protein VP3 *status predicted <VP1> F;841-990/Product: coat protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status predicted <P2A> F;841-990/Product: core protein P2-A *status p2-A *status P2-A *status P2-A *status P2-A *status P2-A *status P2-A *st
genome polyprotein - coxsackievirus B4
N;Contains: coat protein 1A; coat protein 1B; coat protein 1C; coat protein
polymerase (EC 2.7.48)
C;Species: coxsackievirus B4
C;Date: 31-Mar-1989 #sequence_revision 31-Mar-1989 #text_change 16-Jul-1999
C;Accession: A27170; A45576; B45576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F;999-1097/Product: core protein 2B #status predicted <C2B>
F;1098-1426/Product: core protein 2C #status predicted <C2C>
F;11098-1426/Product: core protein 2C #status predicted <C2C>
F;1427-1515/Product: protein 3A *status predicted <P3A>
F;1516-1537/Product: genome-linked protein VPg #status predicted <VPG>
F;1538-1720/Product: proteinase #status predicted <PTS>
F;1721-2182/Product: RNA-directed RNA polymerase #status predicted <RNS>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Molecule type: genomic RNA
A;Residues: 1-2182 <IIZ>
A;Cross-references: GB:M16560; NID:g323417; PIDN:AAC00531.1; PID:g323418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Virology 156, 64-73, 1987
Virology 156, 64-73, 1987
A;Title: Complete nucleotide sequence of the genome of coxsackievirus Bl. A;Reference number: A26353; MUID:87122157; PMID:3027969
A;Accession: A26353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         F;991-1089/Product: core protein P2-B #status predicted <P2B>
F;1090-1419/Product: core protein P2-C #status predicted <P2C>
F;11090-1419/Product: core protein P3-A *status predicted <P3A>
F;1420-1508/Product: genome-linked protein VPg #status predicted <VPG>
F;1509-1531/Product: genome-linked protein VPg #status predicted <VPG>
F;1532-1714/Product: proteinase #status predicted <PTS>
F;1715-2175/Product: RNA-directed RNA polymerase #status predicted <RPS>
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Date: 30-Sep-1988 #sequence_revision 30-Sep-1988 #text_change 16-Jul-1999
C;Accession: A26353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               polymerase (EC 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GNNYB1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F;1511/Binding site: phosphoryl-RNA (Tyr) (covalent) #status predicted
                                                                                                                                                                                                                                                                                GNNYB4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N; Contains:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genome polyprotein – coxsackievirus Bl
                                                                                                                                                                                                                                                                                                                           RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Species: coxsackievirus Bl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1415 EALFQG 1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1422 EALFQG 1427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              coat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           site: phosphoryl-RNA (Tyr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein 1A; .7.7.48)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 30; 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         coat protein 1B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 1e+02;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         coat protein 1C; coat protein 1D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 2175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 2182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein; nucleotidyltransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nucleotidyltransferase
                                                                                                                                                                                  coat protein 1D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              core
```

```
A; Notecule type: genomic RNA
A; Residues: 70-203, 'A', 205-231, 'E', 233-269, 'A', 271-330 <RA2>
A; Residues: 70-203, 'A', 205-231, 'E', 233-269, 'A', 271-330 <RA2>
A; Residues: 70-203, 'A', 205-231, 'E', 233-269, 'A', 271-330 <RA2>
A; Residues: 70-203, 'A', 205-231, 'E', 233-269, 'A', 271-330 <RA2>
A; Residues: 70-203, 'A', 205-231, 'E', 233-269, 'A', 271-330 <RA2>
A; Residues: 70-203, 'A', 205-231, 'E', 233-246.1; PID:g250910
A; Experimental source: B4, virulent strain
A; Note: sequence extracted from NCBI backbone (NCBIN:108105, NCBIP:108107)
C; Superfamily: poliovirus genome polyprotein
C; Keywords: coat protein | A *status predicted <C1B>
F; 169, Product: coat protein | B *status predicted <C1B>
F; 331-569, Product: coat protein | B *status predicted <C1B>
F; 331-569, Product: coat protein | B *status predicted <C2B>
F; 1000-1098, Product: core protein | A *status predicted <C2B>
F; 1000-1098, Product: core protein | B *status predicted <C2B>
F; 1428-1516, Product: core protein | A *status predicted <C2B>
F; 1428-1516, Product: genome-linked protein VPg *status predicted <CPG>
F; 1539-721, Product: RNA-directed RNA polymerase *status predicted <CPG>
F; 1519, Binding site: phosphoryl-RNA (Tyr) (covalent) *status predicted <RPS>
F; 1519, Binding site: phosphoryl-RNA (Tyr) (covalent) *status predicted <RPS>
                                                                                J. Virol. 51, 742-746, 1984
A:Title: Replicase gene of coxsackievirus E
A:Reference number: A00725; MUID:84292451;
A:Accession: B00725
                                                                                                                                                                                                                                                                                                                                                          Virology 156, 50-63, 1987
A;Title: Genome of coxsackievirus
A;Reference number: A26354; MUID: R;Accession: A26354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                A:Note: host Homo sapiens (man)
G:Date: 31-Mar-1988 #sequence_revision 31-Mar-1988 #text_change 05-Jun-1998
G:Accession: A26354; B00725
R:Lindberg, A.M.: Stalhandske, P.O.K.: Pettersson, U.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: genomic RNA; Residues: 569-696, Tr.699-852 <RAM>; Residues: 569-696, Tr.5698-852 <RAM>
A; Cross-references: GB:S39291; NID:9250908; PIDN:AAB22445.1; PID:9250909
A; Experimental source: B4, virulent strain
A; Note: sequence extracted from NCBI backbone (NCBIN:108105, NCBIP:108106)
A; Note: sequence extracted from NCBI backbone (NCBIN:108105, NCBIP:108106)
A; Accession: B45576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Molecule type: genomic RNA
A;ResIdues: 1-2183 < JENN
A;ResIdues: 1-2183 < JENN
R;Ramsingh, A.; Araki, H.; Bryant, S.; Hixson, A.
Virus Res. 23, 281-292, 1992
Virus Res. 23, 281-292, 1992
A;Title: Identification of candidate sequences that determine virulence in Coxsackieviru A;Reference number: A4576; MUID:92327833; PMID:1320798
A;Accession: A45576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Title: The complete nucleotide sequence of coxsackievirus A;Reference number: A27170; MUID:87253111; PMID:3037008 A;Accession: A27170
A; Molecule type: genomic RNA
A; Residues: 1724-1733, 'D', 1735-2185
A; Cross-references: GB:M16572
                                                                                                                                                                                                                                                            A: Molecule type: genomic RNA
A: Residues: 1-2185 <LIN>
A: Cross-references: GB: K02709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genome polyprotein - coxsackievirus B3 (strain Nancy)
N;Contains: coat protein VP1; coat protein VP2; coat p
EC 3.4.-.-); RNA-directed RNA polymerase (EC 2.7.7.48)
                                                                                                                                                                                             R:Stalhandske, P.O.K.; Lindberg, J. Virol. 51, 742-746, 1984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C; Species:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GNNYB3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1423 EALFQG 1428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            coxsackievirus B3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Booth, J.D.; Minor, P.D.; Almond, 68, 1835~1848, 1987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; S
100.0%; S
tive 0;
                                                                                                                                                                                                                                                                                                                                                                                                    evirus B3.
MUID:87122156;
                                                                                                                                                                                                                                M.; Pettersson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                    83
                                                                                                                                                                                                                                                                                                                                                                                                        PMID:3027968
                                                                                                                                 PMID: 6088796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                   ₽.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VP3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleotidyltransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and its comparison to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       coat protein VP4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           언
```

```
C;Superfamily: poliovirus genome polyprotein
C;Keywords: coat protein; core protein; genome-linked protein;
F;1-69/product: coat protein 1A *status predicted <VP4>
F;70-332/product: coat protein 1B *status predicted <VP3>
F;333-570/product: coat protein 1C *status predicted <VP3>
F;571-880/product: coat protein 1D *status predicted <VP1>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA>
F;881-1001/product: coat protein 2A *status predicted <PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
""" 6; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F:1002-1100/Product: core protein P2-B **status predicted <P2B> F:1101-1429/Product: core protein P2-C **status predicted <P2C> F:1430-1518/Product: core protein P3-A **status predicted <P3A> F:1519-1540/Product: genome-linked protein VPg **status predicted <V F:1519-1540/Product: proteinase **status predicted <PTS> F:1541-1723/Product: RNA-directed RNA polymerase **status predicted <PTS> F:1544-2185/Product: RNA-directed RNA polymerase **status predicted <PTS> F:1544-2185/Product: RNA-directed RNA polymerase **status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status predicted **Status pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Reference number: A34664; MUID:90204667; PMID:2157045
A;Accession: A34664
A;Moleonio ****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;333-570/Product: coat protein VP3 *status predicted <VP3>
F;571-880/Product: coat protein VP1 *status predicted <VP1>
F;881-1001/Product: core protein P2-A *status predicted <P2A>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Superfamily: poliovirus genome polyprotein
C;Keywords: coat protein; core protein; genome-linked protein; hydrolase; nucleotid:
F;1-69/Product: coat protein VP4 #status predicted <VP4>
F;70-332/Product: coat protein VP2 #status predicted <VP2>
밁
                                                                                 οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                     F;1519-1540/Product: F;1541-1723/Product:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Molecule type: genomic RNA
A;Residues: 1-2185 <KLU>
A;Cross_references: GB:M33854; NID:g323419; PIDN:AAA42931.1; PID:g323420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R;Klump, W.M.; Bergmann, I.; Mueller, B.C.; Amels, D.; Kandolf, J. Virol. 64, 1573-1583, 1990
A;Tille: Complete nucleotide sequence of infectious coxsacklevi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GNNYBT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F;1521/Binding site:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F;1002-1100/Product: core protein 2B *status predicted <PB2>F;1101-1429/Product: core protein 2C *status predicted <PC2>F;1430-1518/Product: protein 3A *status predicted <PA3>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Accession: A34664
                                                                                                                                                                                                                                                                                                                                                              F;1521/Binding site:
                                                                                                                                                                                                                                                                                                                                                                                                              F;1724-2185/Product:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Date: 30-Jun-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Species:
                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1425 EALFQG 1430
1425 EALFQG
                                                                                                                                                                            Local Similarity hes 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               polyprotein -
                                                                                 1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1991 #sequence_revision 30-Jun-1991 #text_change 16-Jul-1999
1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                     genome-linked protein VPg #status predicted <PB3>
proteinase #status predicted <PC3>
RNA-directed RNA polymerase #status predicted <PD3>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    coxsackievirus
tein 1A; coat pr
                                                                                                                                                                                                                                                                                                                                                         phosphoryl-RNA (Tyr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              phosphoryl-RNA (Tyr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%;
                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    us 83
protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 30;
Pred. No.
                                                                                                                                                                                                                   Score 30; DB 1;
Pred. No. 1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                         (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1e+02;
                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    coat protein
                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                   Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         coat protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nucleotidyltransfera
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <VPG>
                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <RNS>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B3 cDNA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 two
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ini
```

yenome polyprotein - coxsackievirus B5 (strain 1954/UK/85) N;Contains: coat protein IA; coat protein IB; coat protein polymerase (EC 2.7.7.48)

C; Species:

s: coxsackievirus B5 24-Feb-1994 #sequence_revision

ດ : .

Knowles,

N.J.; McCauley,

24-Feb-1994 #text_change 16-Jul-1999

10;

coat protein

ij

cor

```
C;Superfamily: policylrus genome polyprotein
C;Reywords: coat protein; core protein; genome linked protein; nucleotidyltr
F;169/Product: coat protein 1A *status predicted <Cla>
F;70-330/Product: coat protein 1B *status predicted <Cla>
F;331-568/Product: coat protein 1C *status predicted <Cla>
F;331-568/Product: coat protein 1D *status predicted <Cla>
F;331-568/Product: core protein 1D *status predicted <Cla>
F;362-1001/Product: core protein 2A *status predicted <C2A>
F;1002-1100/Product: core protein 2B *status predicted <C2C>
F;1101-1429/Product: core protein 2B *status predicted <C2C>
F;1430-1518/Product: core protein 2C *status predicted <C2C>
F;1410-1518/Product: protein 3A *status predicted <C2C>
F;1410-1518/Product: protein 3A *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Product: protein 3B *status predicted <C2C>
F;1541-773/Pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R; Seechurn, P.; Knowles, N.J.; McCauley, J.W.
Virus Res. 16, 255-274, 1990
A; Title: The complete nucleotide sequence of a pathogenic swine vesicular disease virus.
A; Reference number: S11670; MUID:90364770; PMID:2168111
A; McCauley, J.W.
A; McCauley, J.W.
A; Seechurn, P.; Knowles, N.J.; McCauley, J.W.
A; Seechurn, P.; Knowles, N.J.; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A; McCauley, J.W.
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F:331-586/Product: coat protein VP3 #status predicted <VP3>
F:569-651/Product: coat protein VP1 #status predicted <VP1>
F:569-651/Product: core protein P2-3b #status predicted <P2N-
F:852-1001/Product: core protein P2-3b #status predicted <P2N-
F:11002-1100/Product: core protein P2-5b #status predicted <P2C-
F:1101-1429/Product: core protein P2-X #status predicted <P2C-
F:1430-1518/Product: protein P3-1b #status predicted <P3N-
F:1519-1540/Product: grotein P3-1b #status predicted <P3B>
F:1519-1540/Product: proteinase 3C #status predicted <P3C-
F:1724-2185/Product: RNA-directed RNA polymerase #status predicted <P3D>
F:1724-2185/Product: RNA-directed RNA polymerase #status predicted <P3D>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J. Gen. Virol. 74, 845-853, 1993
A.Title: Complete nucleotide sequence of a coxsackie B5 virus and its relationship to A;Reference number: JQ2021; MUID:93260398; PMID:8388019
A;Accession: JQ2021
A;Accession: JQ2021
A;Molecule type: genomic RNA
A;Residues: 1-2185 < ZRA>
A;Cross references: GB:X67706; NID:959045; PIDN:CAA47944.1; PID:959046
C;Superfamily: policyirus genome polyprotein
                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: genomic RNA
A; Residues: 1-2185 <SEE>
A; Residues: 1-2185 <SEE>
A; Residues: 1-2185 <SEE>
A; Cross-references: EMBL:X34521; NID:g61167; PIDN:CAA38377.1; PID:g61168
A; Note: submitted to the Protein Sequence Database, April 1989
C; Superfamily: poliovirus genome polyprotein
C; Superfamily: poliovirus genome polyprotein
C; Superfamily: poliovirus genome polyprotein
C; Superfamily: coat protein; core protein genome-linked protein; hydrolase; nucleotidyltra
F; 1-69/Product: coat protein VP4 #status predicted <VP4>
F; 30-780/Product: coat protein VP2 #status predicted <VP2>
F; 31-569/Product: coat protein VP3 #status predicted <VP2>
F; 31-569/Product: coat protein VP3 #status predicted <VP3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genome polyprotein - swine vesicular disease virus (strain UKG/27/72) N:Contains: coat protein VP1; coat protein VP2; coat protein VP3; coat protein VP4; core A-directed RNA polymerase (EC 2.7.48) C:Species: swine vesicular disease virus
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GNNYSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;1724-2185/Product: RNA-directed RNA poly
F;1521/Binding site: phosphoryl-RNA (Tyr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Date: 30-Sep-1989 #sequence_revision 30-Sep-1989 #text_change 16-Jul-1999
C;Accession: S11670; A30061
RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                1425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1425 EALFOG 1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity es 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                   1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 EALFOG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                                                                        1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 30; DB 1;
Pred. No. 1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genome-linked protein; nucleotidyltransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
```

```
genome polyprotein - swine vesicular disease virus (strain H, N;Contains: coat protein VP1; coat protein VP2; coat protein A-directed RNA polymerase (EC 2.7.7.48)
C;Species: swine vesicular disease virus
C;Date: 30-Sep-1990 #sequence_revision 30-Sep-1990 #sequence_revision 30-Sep-1990
                                                  polyprotein - echovirus 12
C;Species: echovirus 12
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 05-Jun-1998
                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
"hehes 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Superfamily: poliovirus genome polyprotein C;Keywords: genome-linked protein; phosphoprotein; pc F;1529/Binding site: phosphoryl-RNA (Tyr) (covalent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Status: preliminary
A; Molecule type: genomic RNA
A; Residues: 1-2193 <KRA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F;331-568/Product: coat protein VP3 #status predicted <VP3>
F;569-851/Product: coat protein VP3 #status predicted <VP3>
F;569-851/Product: core protein P2-3b #status predicted <P2A>
F;852-1001/Product: core protein P2-3b #status predicted <P2A>
F;1002-1100/Product: core protein P2-5b #status predicted <P2B>
F;1101-1429/Product: core protein P2-X #status predicted <P2C>
F;1430-1518/Product: protein P3-1b #status predicted <P3A>
F;1430-1519-1540/Product: proteinse 3C #status predicted <P3B>
F;1519-1540/Product: proteinse 3C #status predicted <P3D>
F;1724-2185/Product: RNA-directed RNA polymerase #status predicted <P3D>
F;1724-2185/Product: RNA-directed RNA polymerase #status predicted <P3D>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Accession: A31331
R;Inoue, T.; Suzuki, T.; Sekiguchi, K.
J. Gen. Virol. 70, 919-934, 1989
J. Gen. Virol. 70, 919-934, 1989
A;Title: The complete nucleotide sequence of swine vesicular disease virus.
A;Reference number: A31331; MUID:89279274; PMID:2543767
A;Accession: A31331
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             polyprotein - echovirus 12
C;Species: echovirus 12
C;Date: 20-Fe_-1995 #sequence_revision 20-Feb-1995 #text_change 26-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Superfamily: policyirus genome polyprotein
C;Keywords: coat protein; core protein; genome-linked prote
F;1-69/Product: coat protein VP4 #status predicted <VP4>
F;70-330/Product: coat protein VP2 #status predicted <VP2>
C; Accession:
R; Zimmermann,
                                                                                                                                          S44251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Reference number: A; Accession: S44194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              submitted to the EMBL Data Library, February 1994 A; Reference number: S44194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: genomic RNA
A; Residues: 1-2185 <INO>
                                                                                                                                                                     RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: EMBL:X77708; NID:g2058304; PIDN:CAA54783.1; PID:g474421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R; Kraus, W.; Nelsen-Salz, B.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C; Accession: S44194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S44194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F;1521/Binding site: phosphoryl-RNA (Tyr) (covalent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: GB:D00435; NID:g1228947; PIDN:BAA00337.1; PID:g222630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                       1433 EALFQG 1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1425 EALFQG 1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      · 1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                               1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-Sep-1990 #sequence_revision 30-Sep-1990 #text_change 16-Jun-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 6; Conservat
                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                               100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 30; DB 1; 100.0%; Pred. No. 1e+02;
                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                            Score 30; DB 2;
Pred. No. 1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      phosphoprotein; polyprotein
                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   genome-linked protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *status predicted
                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VP3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hydrolase;
                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               coat protein
                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleotidyl
                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VP4;
```

Kraus, W.;

Nelsen-Salz,

```
C; Species: human enterovirus 70
C; Date: 30-Jun-1993 #sequence_revision 30-Jun-1993 #text_change 05-Jun-1998
C; Accession: A36253
R; Ryan, M.D.; Jenkins, O.; Hughes, P.J.; Brown, A.; Knowles, N.J.; Booth, D.; Minor, P.D.
J. Gen. Virol. 71, 2291-2299, 1990
A; Title: The complete nucleotide sequence of enterovirus type 70: relationships with oth A; Reference number: A36253; MUID:91037960; PMID:2172447
A; Accession: A36253
A; Molecule type: genomic RNA
A; Residues: 1-2194 <RNA
C; Superfamily: poliovirus genome polyprotein
C; Keywords: coat protein; core protein; genome-linked protein; hydrolase; nucleotidyltra
F; 1-69/Product: coat protein 1A #status predicted <VP2>
F; 320-561/Product: coat protein 1B #status predicted <VP3>
F; 652-871/Product: coat protein 1D #status predicted <VP3>
F; 872-1014/Product: coat protein 2A #status predicted <P2A>
F; 1015-1113/Product: core protein 2B #status predicted <P2B>
F; 1114-1443/Product: core protein 2C #status predicted <P2C>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genome polyprotein - human enterovirus 70 (strain J670/71) N;Contains: coat protein 1A; coat protein NA-directed RNA polymerase (EC 27.7.48) C;Species: human enterovirus 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
GNNYE7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Status: preliminary
A:Molecule type: genomic RNA
A:Molecule type: genomic RNA
A:Residues: 1-2193 <ZIM>
A:Cross-references: EMBL:X84981
C:Superfamily: poliovirus genome polyprotein
C:Keywords: genome-linked protein; phosphoprotein; polyprotein
C:Keywords: genome-linked protein; phosphoprotein; psistatus pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Residues: 1-2193 <ZIN>
A;Residues: 1-2193 <ZIN>
A;Cross references: EMBL:X79047
C;Superfamily: poliovirus genome polyprotein
C;Keywords: genome linked protein; phosphoprotein; polyprotein
C;Keywords: genome linked protein; protein; polyprotein
F;1529/Binding site: phosphoryl-RNA (Tyr) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polyprotein (1A, 1B, 1C, 1D, 2A, 2B, 2C, 3A, 3B, 3C, 3D) - echovirus 9
C;Species: echovirus 9
C;Date: 06-Jun-1995 #sequence_revision 21-Jul-1995 #text_change 05-Jun-1998
C;Accession: S52919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Reference number: A; Accession: $52919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R; Zimmermann, H.; Eggers, H.J.; Nelsen-Salz, B. submitted to the EMBL Data Library, February 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: genomic RNA
A; Residues: 1-2193 <ZIM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   submitted to the EMBL Data Library, February 1994 A; Reference number: S44251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Description: Complete nucleotide sequence and construction of an infectious clone of A; Reference number: 852919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: S44251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1433 EALFQG 1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1433 EALFQG 1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Y MACCH 100.0%; Score 30; DB 2; Local Similarity 100.0%; Pred. No. 1e+02; Pes 6; Conservative 0; Micmatoko
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity les 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 30; 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1e+02;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2; Length 2193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 2193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               coat protein 1D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pr
```

```
Query Match
Best Local Similarity
"~+~hes 6; Conserv?
Search completed: May 20, Job time: 1.2315 secs
                                                                       밁
                                                                                                      50
                                                                                                                                                                                                                         F;1444-1532/Product: protein 3A *status predicted <P3A>
F;1533-1554/Product: genome-linked protein VPg *status predicted <VPG>
F;1555-1737/Product: proteinase 3C *status predicted <P3C>
F;1738-2194/Product: RNA-directed RNA polymerase *status predicted <RRP>
                                                                                                                                                                                                                            F;1533-1554/Product:
F;1555-1737/Product:
F;1738-2194/Product:
                                                                                                                                                                                                                F;1535/Binding site:
                                                                   1439 EALFQG 1444
                                                                                                        1 EALFQG 6
                                                                                                                                          Conservative
                                                                                                                                                                                                          phosphoryl-RNA (Tyr) (covalent) #status predicted
                  2003, 11:39:25
                                                                                                                                                           100.0%;
                                                                                                                                                                           100.0%;
                                                                                                                                          ..
                                                                                                                                                            Score 30; DB 1;
Pred. No. le+02;
                                                                                                                                          Mismatches
                                                                                                                                   . 1e+02;
0;
                                                                                                                                                                         Length 2194;
                                                                                                                                        Indels
                                                                                                                                        0;
                                                                                                                                     Gaps
```

0

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           욧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein -
        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                              Score
       2788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length: 0
length: 2000000000
      100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
                                                                                                                                                                                                                                                                                                                             Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                112892 seqs, 41476328 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
Gapop 10.0 , Gapext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-081-408-6
30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               May 20, 2003, 08:02:28 ; Search time 0.141625 Seconds (without alignments) 1757.161 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                              SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                             Length
      6
                                                                                                                                                                                                                                                                                                                             BB
            PDR6_YEAST
POLG_ENDYPY
POLG_CXB1J
POLG_CXB1J
POLG_CXB3N
POLG_CXB3N
POLG_CXB5N
POLG_CXB5N
POLG_CXB16
POLG_CXB16
POLG_CXB16
POLG_EC091
POLG_EC12T
POLG_EC12T
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC150
POLG_EC151
POLG_POL11M
POLG_POL11M
POLG_POL11M
POLG_POL11M
POLG_POL11M
POLG_POL11M
POLG_POL11M
POLG_POL11M
POLG_CXA214
POLG_CXA214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
 P137167 saccharomyc P13715 bovine ente P08291 c genome po 286887 c genome po 291734 e genome po 291734 c genome po 291734 c genome po 291734 c genome po 291734 c genome po 2918604 s genome po 2918604 s genome po 2918604 e genome po 291878 human enter 29478 human enter 29478 human enter 29478 e genome po 291813 e genome po 291813 e genome po 291404 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 c genome po 291805 poliovirus 293300 p genome po 291805 poliovirus 293301 poliovirus 293290 c genome po 2037600 pylaiella 1
                                                                                                                                                                                                                                                                                                                          Description
c genome po
) human rhino
) pylaiella 1
RESULT 2
POLG_BOVEV
                                       밁
                                                      δÃ
                                                                                                               SQ
                                                                         Query Match
Best Local Similarity
Matches 6; Conserv
```

631 EALFQG 1 EALFQG 6

636

Conservative

100.0%; Score 30; DB 1; Length 1081; 100.0%; Pred. No. 26; Live 0; Mismatches 0; Indels

0

Gaps

0;

00000000000000000000000000000000000000	36666222		R 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	A H P R		
the E use modif entit or se EMBL; EMBL; EMBL; SGD; SEQUE					R6		0 0 0 0 0 0 0 4 4 4 4 4 4 4 4 4 4 4 4 4
European E by non-E filed and t ties requi- end an ema- ; S58126; ; S57895; ; Z72538; ; Z15040; S S0002984;	ENCE FROM N.A ing U., Hofma ing U., Hofma itted (MAY-19 FUNCTION: PRO PERMEABILITY.	ENCE FROIT IN-II-125 IN-II	Saccharomyces ce Eukaryota; Fungi Saccharomycetale NCBI_TaxID=4932;	1993 1-1993 1-1996 1-1996 1-1996	EAST		27 27 27 27 27 27 27 27 27 27 26
pean Bioinfo non-profit and this st requires a nemail to 126; AAD139 895; AAB196 7538; CAA967 740; S15040. 1081 AA;	FROM N.A. , Hofmann B., (MAY-1996) to ION: PROBABLE ABILITY	M N.A. 5-2B; 5-2B; 53083; 721 E.; 71 on ci 71 on	Saccharomyces cere Eukaryota; Fungi; Saccharomycetales; NCBI_TaxID=4932; [1]				90.0 90.0 90.0 90.0 90.0 90.0 90.0 90.0
2 110 110 7	fmann B., De 1996) to th PROBABLE POS TY	FROM N.A. 125-2B; 1353083; PubMed-1882553; 1353083; PubMed-1882553; Balzi E., Capleaux E., C sequencing of the 17 kb loci on chromosome VII f gene, a new member of th ic drug resistance."; 87-299(1991).	visiae Ascomyc Saccha	27, Created 27, Last se 34, Last an resistance r	STANDARD;		323 365 395 443 443 452 614 707 707 1337 163 169
Instition is agreatist.	E E	l882553; IX E., C 17 kb 17 kb 17 kb 17 cf th 2r of th	(Baker's ota; Sac comyceta	ated) c sequence up c annotation ce regulatory	PRT	AL	1 TTD2_HUMAN 1 FXH1_HUMAN 1 SYW_AQUAE 1 SYS_PHAVU 1 HF5_PHAVU 1 HF5_PHACSI 1 HLY2_ECOLJ 1 HLYB_ECOLJ 1 HLYB_ECOLJ 1 HLYB_CAMJE 1 HIS7_HALNI 1 CYC4_PSEAR
matics Institute. There are institutions as long as its tement is not removed. Usag icense agreement (See http:/icense@isb-sib.ch).	./GenBank/DDBJ data REGULATOR OF PROTE	82553; E., Choder M., Goffeau 7 kb HindIII fragment; VII from Saccharomyces of the genetic network	7 1	ce update) tion update atory prote	, 1081	ALIGNMENTS	TTD2_HUMAN FXH1_HUMAN SYM_AQUAE HIS5_PHAVU HIS7_BACSU HLY2_ECOLI HLYB_ECOLI YDM5_ECOLI YDM5_ECOLI YDM5_HALN1 CYC4_PSEAE
ere ar as it as it http:	J da PRC	,, Goffeau fragment s charomyces ic network	:). ycotina; Sacc Saccharomyces	e) late) otein 6	A	.	
no cont	base INS		Saccharomyce 1yces.	***			
estri nt i and sb-si	NVOLVI	A.; panning the cerevisiae: controlling	comycete				P09758 0075593 0075593 0075593 1007115 P48724 P28624 P33116 P33116 P33116 P37136 P87136 Q46106 Q46106 Q9hn13 P00106
ctions on it s in no wa for commercia b.ch/announce	D IN	e LEU1 reveals	es;				homo sapien homo sapien aquifex aeo phaseolus v phytophthor bacillus su escherichia escherichia escherichia descherichia eschizosacch campylobact halobacteri pseudomonas
ns on its n no way commercial //announce/	ration	ω					sapien apien apien aeo llus v hithor chia ichia ichia ichia ichia ichia

```
THE WELL BURNERS AND DESCRIBED DESCRIBED TO COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLO
                                                                                                                                                                                InterPro; IPR000199; Cys-protease-3C.
InterPro; IPR003138; Pico_PlA.
InterPro; IPR003138; Pico_P2A.
InterPro; IPR000081; Pico_P2A.
InterPro; IPR000065; RNA_helicase.
InterPro; IPR001205; RNA_poll_P3D.
InterPro; IPR001205; RNA_poll_P3D.
InterPro; IPR00173; rhv; 3.
Pfam; PF00073; rhv; 3.
Pfam; PF000548; Cys-protease-3C; 1.
Pfam; PF00680; RNA_dep_RNA_pol; 1.
Pfam; PF00680; RNA_helicase; 1.
Pfam; PF00910; RNA_helicase; 1.
Pfam; PF009152; Pico_P2A; 1.
Pfam; PF005226; Pico_P1A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pfam; PF01552; Pico_P2B; 1.
Pfam; PF02226; Pico_P1A; 1.
ProDom; PD001125; Cys-protease-3C; 1.
ProDom; PD001274; Pico_P2B; 1.
ProDom; PD001306; Pico_P2A; 1.
Polyprotein; Coat protein; Core protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PDB; 1BEV; 16-SEP-98.
MEROPS; C03.UPA; -.
MEROPS; C03.UPB; -.
                                                     RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; D00214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=88117392; PubMed=2828511; Earle J.A.P., Skuce R.A., Fleming C.S., Hoey E.M., Martin S.J., "The complete nucleotide sequence of a bovine enterovirus."; J. Gen. Virol. 69:253-263(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Implications for viral uncoating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Smyth M., Tate J., Hoey E.M., Lyons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF 1-840 MEDLINE=95292108; PubMed=7773791;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bovine enterovirus (strain VG-5-27) (BEV).
Viruses; ssRNA positive-strand viruses, no DNA stage;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-OCT-1989 (Rel. 12, Created)
01-OCT-1989 (Rel. 12, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
16-DIN-2002 (Rel. 41, Last annotation update)
17 P2C, P3A; Genome-linked proteins VP1 To VP4;
18 P2A TO P2C, P3A; Genome-linked protein VPG; Picornain 3C (EC 3.4.22.28) (Protease 3C) (P3C); RNA-directed RNA pol (EC 2.7.7.48)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-OCT-1989
01-OCT-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=12065;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLG_BOVEV
P12915;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      {RNA}(N).
SUBUNIT: THE VIRUS CAPSID IS
EACH OF WHICH IS COMPOSED OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTM: SPECIFIC ENZYMATIC CLEAVAGES SIMILARITY: THE PROTEASE BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A29824;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SPECIFIC ENZYMATIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GNNYBE
        N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BAA24003.1; ALT_SEQ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLEAVAGES
                                                     Hydrolase;
COAT PROTEIN VP4 (P1A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ONE COPY EACH (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                റ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2175 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S IN VIVO YIELD MATURE PROTEINS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  , Martin S.J.,
the structure
                                                     Thiol
                                                                             Transferase;
                                                     protease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OF PROTEINS VP1, VP2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RNA polymerase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Stuart D.; of bovine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Core proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P3D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ğ
```

```
RESULT
POLG_CX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                               Genome polyprotein [Contains: Coat protein VP4 (PlA); Coat protein VP2 (PLB); Coat protein VP3 (PlC); Coat protein VP4 (PlA); Coat protein VP3 (PlC); Coat protein VP4 (PlD); Picornain 2A (EC 3.4.22.29) (P2A); Core protein P2B; Core protein P2C; Core protein P3A; Genome-linked protein VPG (P3B); Picornain 3C (EC 3.4.22.28) (Protease 3C) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3D)]. Coxsackievirus B1 (strain Japan).
                                                                                                                                                                                              -!- FUNCTION: IT IS THOUGHT THAT THE P2C PROTEIN ATTACHES TO VESIC MEMBRANES AND IS ASSOCIATED WITH VIRAL RNA SYNTHESIS.
-!- CATALYTIC ACTIVITY: Selective cleavage of Gln-|-Gly bond in the poliovirus polyprotein. In other picornavirus reactions Glu mas substituted for Gln, and Ser or Thr for Gly.
-!- CATALYTIC ACTIVITY: Selective cleavage of Tyr-|-Gly bond in the picornavirus polyprotein. In other picornavirus reactions Glu be substituted for Gln, and Ser or Thr for Gly.
                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation between Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CXB1J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACT_SITE
ACT_SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1415 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                  +
                                                                                                                                                                                                                                                                                                                                             Virology
                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POLG_CXB1J
P08291;
                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=87122157; PubMed=3027969;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Enterovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                           Viruses; ssRNA positive-strand viruses, no DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-AUG-1988 (Rel. 08, Last sequence update)
                                                                                                                                                                                                                                                                                                                                          "Complete nucleotide sequence of the genome of Virology 156:64-73(1987).
                                                                                                                                                                                                                                                                                                                                                                  izuka N., Kuge S., Nomoto A.;
                                                                                                                                                                                                                                                                                                                                                                                                                       VCBI_TaxID=103902;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-AUG-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 EALFQG
                                                                 VP3, AND VP4.

PTM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE P
CLEAVAGE BETWEEN VP4 AND VP2 IS AUTOCATALYTIC; VP1/P2A I
CATALYZED BY P2A; ALL OTHER CLEAVAGES ARE CATALYZED BY P
SIMILARITY: P2A PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
SIMILARITY: P3C PROTEASE BELONGS TO PERTIDASE FAMILY C3.
                                                                                                                                                  SUBUNIT: THE VIRUS CAPSID EACH OF WHICH IS COMPOSED
                                                                                                                                                                                       CATALYTIC ACTIVITY:
                                                                                                                                                                                                                                                                                                                             FUNCTION: P2A AND THE P3C POLYPEPTIDES ARE PROTEASES THAT CLEAVE
                                                                                                                                                                                                                                                                                                                 AT CERTAIN Q/G SITES IN THE POLYPROTEIN. THEY ARE
                                                                                                                                                                            (RNA)(N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      70
318
560
841
991
1090
1420
1509
1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (Rel. 08, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    317
559
840
990
1089
11419
11508
11531
11714
2175
2175
2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     242502
                                                                                                                                                                                    N nucleoside triphosphate - N diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MYRISTATE.
PROTEASE (
PROTEASE (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORE PROTEIN P3A.
GENOME-LINKED PROTEIN
PICORNAIN 3C.
                                                                                                                                                  Sig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RNA-DEPENDENT RNA POLYMERASE P3D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                  COMPOSED OF 60 ICOSAHEDRAL ONE COPY EACH OF PROTEINS V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44FCADE8704E48FD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROTEIN P2A.
PROTEIN P2B.
PROTEIN P2C.
PROTEIN P3A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VP3
VP3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (P1B).
(P1C).
(P1D).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                     coxsackievirus B1.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VPG
                                                                                                                                                                                                                                                                                                                 CYSTEINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (P3B).
                                                                                                                                                VP1,
                                                                                                                                                              UNITS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                        VESICULAR
                                                                                                                                                                                                                                                 may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                             may
                                                                                                                                                                                                                                                   þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

institutions as long

ormatics and the EMBL outst There are no restrictions ong as its content is in

entities or send a

EMBL;

InterPro; InterPro; MEROPS; C03.

InterPro; InterPro; nterPro;

InterPro;

bond in

Glu

the may

be

Glu

THAT CLEAVE

```
15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-JUL-1999 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation vpd (PIA); Coat protein [Contains: Coat protein vpd (PIA); Coat protein [Contains: Coat protein vpl (PID); Picornain; (EC 3.4.22.29) (P2A); Core protein P2B; Core protein P2C; Core proper P3A; Genome-1inked protein VpG (P3B); Picornain 3C (EC 3.4.22.28)
(Protease 3C) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3C)
                   SEQUENCE FROM N.A.

MEDLINE-95205102; PubMed-7897366;
Kang Y., Chatterjee N.K., Nodwell
"Complete nucleotide sequence of
                                                                                                                                      Enterovirus.
NCBI_TaxID=103905;
                                                                                                                                                                          Viruses; ssRNA positive-strand viruses,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProDom; PD001125; Cys-protease-3C; ProDom; PD001274; Pico_P2B; 1. ProDom; PD001306; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro: IPR001676; Rhv.
Pfam; PF000743; rhv; 3.
Pfam; PF00548; Cys-protease-3C;
Pfam; PF00680; RNA_dep_RNA_pol;
Pfam; PF00910; RNA_helicase; 1.
Pfam; PF00947; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         M16560;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; IPR000199; Cys-protease-3C.

; IPR00013138; Pico_P1A.

b; IPR000081; Pico_P2A.

; IPR002527; Pico_P2B.

b; IPR000505; RNA_helicase.

b; IPR001205; RNA_helicase.

b; IPR001205; RNA_pol_P3D.

c; IPR001676; Rhv.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       s requires
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    333
571
849
999
1098
1427
1516
1538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1684
1698
2182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%;
llarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Coat protein; Core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GNNYB1
                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pico_PlA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P1co_P2B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       to
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69
332
570
848
998
1097
1426
1515
1537
1720
2182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             license agreement (See http://www.isb-sib.ch/announce/license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            243945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 30; DB Pred. No. 52; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COAT PROTEIN V
PICORNAIN 2A.
CORE PROTEIN P
CORE PROTEIN P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROTEASE 3C (POTENTIAL).
PROTEASE 3C (POTENTIAL).
WW; 387B9391275859B1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MYRISTATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RNA-DIRECTED RNA POLYMERASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENOME-LINKED PROTEIN VPG. PICORNAIN 3C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hydrolase; Thiol
                                 11 м.д.,
                   a strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E PROTEIN P2B.
E PROTEIN P2C.
E PROTEIN P3A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROTEIN VP4.
PROTEIN VP2.
PROTEIN VP3.
PROTEIN VP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                     2183
                Yoon
in of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transferase;
                J.W.;
f coxsackie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Length 2182;
                                                                                                                                                                                                                                                           (PlA); Coat protein VP2
1 (PlD); Picornain 2A
rotein P2C; Core protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protease
                                                                                                                                                                          stage; Picornaviridae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Myristate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                  (P3D)]
           of
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam: PF00073; rhv; 3.

Pfam: PF00548; Cys-protease-3C; 1

Pfam: PF00680; RNA_dep_RNA_pol; 1

Pfam: PF00910; RNA_helicase; 1.

Pfam: PF00947; P1co_P2A; 1.

Pfam: PF001552; P1co_P2B; 1.

Pfam: PF02226; P1co_P1A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro: IPR004004; Calici_pol_hel.
InterPro: IPR000199; Cys-protease-3C.
InterPro: IPR000199; Pico_PlA.
InterPro: IPR000181; Pico_P2A.
InterPro: IPR000527; Pico_P2B.
InterPro: IPR000605; RNA_helicase.
InterPro: IPR001205; RNA_pol_p3D.
InterPro: IPR001676; RNA_pol_p3D.
InterPro: IPR001676; RNA_pol_p3D.
                                             CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                         CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                      RNA-d
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                use by non-profit institutions as long imodified and this statement is not removed entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nondiabetogenic coxsackie B4 JBV strain.";
J. Med. Virol. 44:353-361(1994).
-i- FUNCTION: P2A AND THE P3C POLYPEPTIDES AI
AT CERTAIN Q/G SITES IN THE POLYPROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; S76772;
HSSP; P21404;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <del>:</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATALYZED BY P2A; ALL OTHER CLEAVAGES SIMILARITY: P2A PROTEASE BELONGS TO PE SIMILARITY: P3C PROTEASE BELONGS TO PE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (RNA)(N).
SUBUNIT: THE VIRUS CAPSID
TOTH OF WHICH IS COMPOSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLEAVAGES BETWEEN VP4 AND VP2 IS AU CATALYZED BY P2A; ALL OTHER CLEAVASIMILARITY: PPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       poliovirus polyprotein. In other picornavirus reacti
substituted for Gln, and Ser or Thr for Gly.
CATALYTIC ACTIVITY: Selective cleavage of Tyr-|-Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FUNCTION: IT IS THOUGHT THAT THE P2C PROTEIN ATTACHES MEMBRANES AND IS ASSOCIATED WITH VIRAL RNA SYNTHESIS CATALYTIC ACTIVITY: Selective cleavage of G1n-1-G1y 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VP3, AND VP4.
PTM: SPECIFIC ENZYMATIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           picornavirus polyprotein. In other picornavirus reactions be substituted for Gln, and Ser or Thr for Gly. CATALYTIC ACTIVITY: N nucleoside triphosphate - N diphosph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced through
een the Swiss Institute of Bioinformatics and the Ex
European Bioinformatics Institute. There are no restr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROTEASES.
                                                                                                                                                                                                                                                                                                                                                                                                    irected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            origin that induces
                                                                                                                                                                                                                                                                                                                                                                                                                                        PR00918; CALICVIRUSNS.
PD001125; Cys-protease-3C;
PD001274; Pico_P2B; 1.
PD001306; Pico_P2A; 1.
                                                                                                                                      569
850
1000
1099
1428
1517
1539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAB33885.1; -.
                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                 polymerase;
                                                                                                                                                              69
330
568
849
999
1098
1098
1427
1516
1538
                                                                       1699
                                                                                                                                                                                                                                                                                                                                                                                                                  protein; Core protein;
  100.0%;
                                               244649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 diabetes in mi
B4 JBV strain.
                                               ¥.
                                                                                                                                                                              COAT PROTEIN VECOAT PROTEIN VECOAT PROTEIN VECOAT PROTEIN VACOAT PROTEIN VALUE PICORNAIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PROTEIN PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTORE PACTO
                                                                PROTEASE
PROTEASE
                                                                                                           PICORNAIN 3C.
RNA-DIRECTED RNA POLYMERASE
MYRISTATE (BY SIMILARITY).
  Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OF
                                                                                                                                                                                                                                                                                                                                                                                     drolase; Thiol protease
                                                                                                                                                                                                    E PROTEIN P2B.
E PROTEIN P2C.
E PROTEIN P3A.
                                           PEASE (POTENTIAL).
BF44781CF6981D39 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ONE COPY
                                                                                                                                                                                                                                                                                               PROTEIN VP2.
PROTEIN VP3.
PROTEIN VP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTOCATALYTIC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TO PEPTIDASE FAMILY C3.
                                                                                        (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IN VIVO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mice
DВ
                                                                                                                                                                                                                                                                                                                                                                                                                Transferase; Myristate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROTEIN ATTACHES TO VESICULAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EACH O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATALYTIC; VP1/P2A
ARE CATALYZED BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      as its content
                                                                                                                                                                              PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ARE PROTEASES THAT (
۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YIELD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ç
Length 2183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ICOSAHEDRAL
OF PROTEINS V
                                                                                                                                                                              VPG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         reactions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     comparison with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         restrictions
```

and

for

in no way commercial 00 00 01

its

EMBL

മ

collaboration

P3C PROTEINS VP1, VP2,

RESULT

POLG_CXB4E Q86887; CXB4E 밁 Ş

1422

_

EALFOG 6 EALFQG

Query Match Best Local S Matches 6

ACT_SITE ACT_SITE SEQUENCE

CHAIN CHAIN

LIPID

CHAIN CHAIN CHAIN CHAIN CHAIN CHAIN

Polyprotein; RNA-directed

100.0%;

```
RESULT
POLG_C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-AUG-1988 (Rel. 08, Created)
01-AUG-1980 (Rel. 14, Last sequence update)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Genome.polyprotein [Contains: Coat protein VP4 (PlA); Coat protein 2A
(PLB); Coat protein VP3 (PlC); Coat protein P2B; Core protein P2C; Core protein P2C; Core protein P3A; Genome-linked protein VP6 (P3B); Picornain 3C (EC 3.4.22.28)
(Protease 3C) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3D)]; Coxsackievirus B4 (strain JVB / Benschoten / New York/S1).
Viruses; ssRNA positive-strand viruses, no DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Jenkins O.;
Submitted (AUG-1989) to the EMBL/GenBank/DDBJ databases.
-I- FUNCTION: PZA AND THE P3C POLYPEPTIDES ARE PROTEASES THAT CLEAVE AT CERTAIN Q/G SITES IN THE POLYPROTEIN. THEY ARE CYSTEINE
                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outse the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for commodified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=87253111; PubMed=3037008;
Jenkins O., Booth J.D., Minor P.D., Almond J.W.;
Jenkins O., Booth J.D., Minor P.D., Almond J.W.;
"The complete nucleotide sequence of coxsackievirus B4 and
comparison to other members of the Picornaviridae.";
J. Gen. Virol. 68:1835-1848(1987).
   InterPro;
InterPro;
InterPro;
                                                                                                       EMBL; X05690; CAA29172.1;
PIR; A27170; GNNYB4.
                                                                                                                                                          entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P08292;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          СХВ4 Л
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1423
                                                     HSSP; P21404; 1D4M.
MEROPS; C03.011; -.
MEROPS; C03.022; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <del>:</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=103906;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REVISIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               سا
                                                                                                                                                                                                                                                                                                 PTM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE PROT
CLEAVAGE BETWEEN VP4 AND VP2 IS AUTOCATALYTIC; VP1/P2A IS
CATALYZED BY P2A; ALL OTHER CLEAVAGES ARE CATALYZED BY P3C.
SIMILARITY: P2A PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
SIMILARITY: P3C PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FUNCTION: IT IS THOUGHT THAT THE P2C PROTEIN ATTACHES TO VESICULAR MEMBRANES AND IS ASSOCIATED WITH VIRAL RNA SYNTHESIS.

CATALYTIC ACTIVITY: Selective cleavage of Gln-|-Gly bond in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               poliovirus polyprotein. In other picornavirus reactions Glu
substituted for Gln, and Ser or Thr for Gly.
CATALYTIC ACTIVITY: Selective cleavage of Tyr-|-Gly bond in
                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATALYTIC ACTIVITY: N nucleoside triphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                picornavirus polyprotein. In other picornavirus reactions be substituted for Gln, and Ser or Thr for Gly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                {RNA}(N).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EALFOG 1428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        СХВ4 Л
                                                                                                                                                                                                                                                                                                                                                                                                           NIT: THE VIRUS CAPSID IS COMPOSED OF 60 ICOSAHEDRAL OF WHICH IS COMPOSED OF ONE COPY EACH OF PROTEINS V
                                                                                                                                                                                                                                                                                                                                                                                             AND VP4.
IPR000199; Cys-protease-3C
IPR003138; Pico_P1A.
IPR000081; Pico_P2A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2183
                                                                                                                                                                             (See http://www.isb-sib
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ζ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                        Q,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŧ
                                                                                                                                                                                                                                                                                                                                                                                                           PROTEINS VP1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                             N diphosphate
                                                                                                                                                                                                                                                    a collaboration -
                                                                                                                                                                                                                                                                                                                                                                          PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    its
                                                                                                                                                                                                                                                                                                                                                                                                           VP1, VP2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                           .ch/announce/
                                                                                                                                                                                                                                                   outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  may
                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
POLG_E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACT_SITE
ACT_SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                         POLG_ECO1F STANDARD; PRT; 2184 AA.

polf34; Q65795; Q9YID6;
15-JUL-1999 (Rel. 38, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last sentence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Genome polyprotein [Contains: Coat protein VP4 (PlA); Coat protein VP2 (P1B); Coat protein VP1 (P1D); Picornain 2A (EC 3.4.22.29) (P2A); Core protein P2B; Core protein P2C; Core protein P3A; Genome-linked protein VP6 (P3B); Picornain 3C (EC 3.4.22.28)

(Protease 3C) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3D)].

Echovirus 1 (Strain Parouk / ATCC VR-1038).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00548; Cys-protease-3C; Pfam; PF00680; RNA_dep_RNA_pol; Pfam; PF00910; RNA_helicase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam;
                                                                                                                                                                                                            Bergelson J.M.; "Receptor interactions, infectious cDNA, and nucleotide sequences echovirus 1/8.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EC01F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1423 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProDom; PD001125; Cys-protease-3C; ProDom; PD001274; Pico_P2B; 1. ProDom; PD001306; Pico_P2A; 1. Polyprotein; Coat protein; Core property of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of the protein of 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
InterPro;
SEQUENCE OF 570-853 MEDLINE=99138973; Pu
                                                                           coxsackie
                                                                                                                MEDLINE-96203959;
Huttunen P., Santt
                                                                                                                                                                                                  Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF02226;
                                                                                                                                                          SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                          Enterovirus
                                                                                                                                                                                                                                                                                                                                                         Viruses; ssRNA positive-strand viruses, no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LIPID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                              "The major echovirus group
                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=103908;
                                                        oxsackie B viruses.";
. Gen. Virol. 77:715-725(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  irected RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF01552;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR002527; Pico_P2B.
IPR000605; RNA_helicase.
                                                                                                                                                                                                (APR-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IPR001205; RNA_pol_P3D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1699
2183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1000
1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        σ
                                                                                                                                                          69-330 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                            3959; PubMed-8627260;
Santti J., Pulli T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1699
3 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pico_P1A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pico_P2B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pico_P2A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             330
568
849
999
1098
1427
1516
1538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1685
                FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%;
                                                                                                                                                                                                to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             244012
                                                                                            lli T., Hyypiae
is genetically
                                                                                                                                                                                                  EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PICORNAIN 2A.
CORE PROTEIN P2B.
CORE PROTEIN P2C.
CORE PROTEIN P3A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COAT PROTEIN VP3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROTEASE (POTENTIAL).
PROTEASE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENOME-LINKED PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COAT PROTEIN VP4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MYRISTATE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RNA-DIRECTED RNA POLYMERASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PICORNAIN 3C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEA069DE3AE91AF0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Thiol protease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transferase; Myristate;
                                                                                                coherent and
                                                                                                                     T.;
                                                                                                                                                                                                                                                                                                                                                             DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۲,
                                                                                                                                                                                                  databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 2183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VPG.
                                                                                                  related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                          of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
InterPro; IPR003593; AAA_ATPASE.
InterPro; IPR004004; Calici_pol_hel.
InterPro; IPR000199; Cys-protease-3C.
InterPro; IPR000193; Pico_PlA.
InterPro; IPR000181; Pico_P2A.
InterPro; IPR002527; Pico_P2B.
InterPro; IPR001676; Rhv.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oberste M.S., Mahen
"Molecular evolution
serotype with VPI of
classification.";
          CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                    CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00073; rhv; 4.
Pfam; PF02226; Pico_PlA; 1.
PRINTS; PR00918; CALICVIRUSNS.
ProDom; PD001125; Cys-protease-3C;
ProDom; PD001274; Pico_P2B; 1.
ProDom; PD001306; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entities
or send a
                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AF029859; AAC63944.2; -. EMBL; X89531; CAA61710.1; -. EMBL; AF081314; AAD17718.1; -. PDB; 1EV1; 27-JAN-99.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDITIVE-93192672; PubMed-10089503;
Filman D.J., Wien M.W., Cunningham J.A., Berg "Structure determination of echovirus 1.";
Acta Crystallogr. D 54:1261-1272(1998)
-i- FUNCTION: P2A AND THE P3C POLYPEPTIDES AF AT CERTAIN Q/G SITES IN THE POLYPROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                             Polyprotein;
RNA-directed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   between the Swiss Institute of Bioinformat
the European Bioinformatics Institute. The
use by non-profit institutions as long
modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <del>:</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X-RAY CRYSTALLOGRAPHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PTM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE P
CLEAVAGE BETWEEN VP4 AND VP2 IS AUTOCATALYTIC; VP1/P2A I.
CATALYZED BY P2A; ALL OTHER CLEAVAGES ARE CATALYZED BY
SIMILARITY: P2A PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
SIMILARITY: P3C PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              picornavirus polyprotein. In other picornavirus reactions be substituted for Gln, and Ser or Thr for Gly. CATALYTIC ACTIVITY: N nucleoside triphosphate - N diphosph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  poliovirus polyprotein. In other picornavirus reactions Glu substituted for Gln, and Ser or Thr for Gly.
CATALYTIC ACTIVITY: Selective cleavage of Tyr-|-Gly bond in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION: It is thought that the P2C protein attaches membranes and is associated with viral RNA synthesis. CATALYTIC ACTUTY: Selective cleavage of Gin--Gly because of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PTM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROTEASES.
FUNCTION: It is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUBUNIT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SWISS-PROT entry is copyright. It is produced through a collaboration seen the Swiss Institute of Bioinformatics and the EMBL outstation surrogan Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in no way the content is in the content in the content is in no way the content is in the content in the content in the content in the content is in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the content in the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (RNA)(N).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SM00382; AAA; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               s requires a license agreement (See http://www.isb-sib.an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OF WHICH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AND VP4.
              331
570
851
1001
1100
1429
1518
1518
1540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73:1941-1948(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S., Maher K., Kilpatrick D.R., Pallansch evolution of the human enteroviruses: co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                THE VIRUS CAPSID WHICH IS COMPOSED
                                                                                                                                                                                                                                                                                                                                                                                                                         polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence and
              330
569
850
1000
1099
1428
1517
1539
1722
2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Core
COAT PROTEIN VI
COAT PROTEIN VI
COAT PROTEIN VI
PICORNAIN 2A.
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
CORE PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL PROTEIN PO
PICONNEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                  ore protein; Transferase; Myristate;
Hydrolase; Thiol protease; 3D-struc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OF
SI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 application
                                                                                                                                                                                                                                                                      PROTEIN VP4.
F PROTEIN VP2.
F PROTEIN VP3.
F PROTEIN VP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPOSED OF
ONE COPY EAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OF 2-850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bergelson
                                                                                                                                        P2B
P2C
P3A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF 60
EACH C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ARE PROTEASES
N. THEY ARE CY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                    PROTEIN VPG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 picornavirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    얽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ICOSAHEDRAL UNITS,
OF PROTEINS VP1, VP2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ch M.A.;
correlation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               attaches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        J.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CYSTEINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bond
                                                                                                                                                                                                                                                                                                                                                                                                           3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hogle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        is
for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               to vesicular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P3C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLEAVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        J.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      may
```

```
FRESCH PROCESS OF STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE STATE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFFIFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                         Staalhandske P.O.K., Lindberg A.M., "Replicase gene of coxsackievirus B: J. Virol. 51:742-746(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-JUL-1986 (Rel. 01, Created)

01-NOV-1991 (Rel. 20, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Genome polyprotein [Contains: Coat protein VP4 (PIA); Coat protein VP3 (PIC); Coat protein VP1 (PID); Picornain 2A (EC 3.4.22.29) (P2A); Core protein P2B; Core protein P2C; Core prote P3A; Genome-linked protein VPG (P3B); Picornain 3C (EC 3.4.22.28)
P3A; Genome-linked protein VPG (P3B); Picornain 3C (EC 3.4.22.28)
(Protease 3C) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3D)
Coxsackievirus B3 (strain Nancy).
Viruses; ssRNA positive-strand viruses, no DNA stage; Picornaviridae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACT_SITE
ACT_SITE
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLG_CXB3N
P03313; Q66
Q83744;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1424
                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (3.5 ANGSTROMS) (MICKELBAUER J.K., Kremer M., Minor I., Johnson J.E., Rossmann M.G.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lindberg A.M., Staalhandske P.O. "Genome of coxsackievirus B3."; Virology 156:50-63(1987).
                                                                                                                                                                                         "Structure determination of coxsackievirus B3 Acta Crystallogr. D 51:871-887(1995).
-i- FUNCTION: P2A AND THE P3C POLYPEPTIDES AR AT CERTAIN Q/G SITES IN THE POLYPROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MEDLINE-87122156; PubMed-3027968;
MEDLINE-87122156; PubMed-3027968;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.

MEDLLINE-90204667; PubMed-2157045;

Klump W.M., Bergmann I., Mueller B.C., Ameis D., Kandolf R.;

"Complete nucleotide sequence of infectious Coxsacklevirus B
two initial 5' uridine residues are regained during plus-str
                                                                                                                                                         ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           synthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Enterovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CXB3N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=103903;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Virol. 64:1573-1583(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ٢
                                     PROTEASES.
FUNCTION: IT IS THOUGHT THAT THE P2C PROTEIN ATTACHES TO VES MEMBRANES AND IS ASSOCIATED WITH VIRAL RNA SYNTHESIS.
CATALYTIC ACTIVITY: Selective cleavage of Gln-|-Gly bond in poliovirus polyprotein. In other picornavirus reactions Glu substituted for Gln, and Ser or Thr for Gly.
CATALYTIC ACTIVITY: Selective cleavage of Tyr-|-Gly bond in CATALYTIC ACTIVITY: Selective cleavage of Tyr-
picornavirus polyprotein. be substituted for Gln, a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EALFOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q66322;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      238
611
645
724
774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD; ; Q66323; (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₹,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1686
1700
69
238
611
645
724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            244003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q66324; Q66325; Q66326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROTEASE
PROTEASE
N -> M (I
A -> R (I
A -> V (I
Y -> F (I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 30; DB
Pred. No. 52;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         viruses, no DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTEASE 3C (POTENTIAL OTEASE 3C)

NOTEASE 3C (POTENTIAL OTEASE 3)

NOTEASE 3C (POTENTIAL OTEASE 3)

NOTEASE 3C (POTENTIAL OTEASE 3)

NOTEASE 3C (POTENTIAL OTEASE 3)

NOTEASE 3C (POTENTIAL OTEASE 3)

NOTEASE 3C (POTENTIAL OTEASE 3)

NOTEASE 3C (POTENTIAL OTEASE 3)

NOTEASE 3C (POTENTIAL OTEASE 3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ' '
                                                                                                                                                                                                                                                                                                                                                                                                     ., Pettersson B3.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pettersson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2185 AA
                                                                                                                                                                                                                                                                                                                                  OF 1-851.
                                                                                                                                                                                                                                                                                                           Tong
r for Gly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL).
                                                                                                                                                                                                  ARE PROTEASES THAT O
                                                                                                                                                                                                                                                                     83
                                                                                                                                                                                                                                                                                                             ۲.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۲;
                                                                                                                                                                                                                                                                   ដូ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ت</u>.;
                                                                                                                                                                                                                                                                                                                                                                                                                          u . ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q66327; Q66328;
                                                                                                                                                                                                                                                                                                               Zlotnick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                   3.5-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              plus-strand
                                                                                                                                                                                                                                                                     resolution.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2184;
                                                                                                                                                                                                                                                                                                             Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B3 cDNA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                         VESICULAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e protein
                    Glu
                                                                                                                                                                                                                         CLEAVE
                                                                                     may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (P3D)].
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VP2
                                                                                        ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

: ÷

THE VIRUS ACTIVITY: N

RUS CAPSID

SI

COMPOSED OF 60 ICOSAHEDRAL UNITS.

VP2,

ICH IS

CATALYTIC SUBUNIT:

nucleoside triphosphate - N diphosphate

```
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                           ACT_SITE
ACT_SITE
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This
                                                                    CONFLICT
                                                                                        CONFLICT
                                                                                                                                                           CHAIN
                                                                                                                                                                               CHAIN
                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                          Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; M33854; AAA42931.1; -. EMBL; K02709; AAA42932.1; -. EMBL; M16572; AAA74400.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                            Pfam;
Pfam;
                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                       Polyprotein; Coat
RNA-directed RNA
                                                                                                                                                                                                                                                                                          ProDom; PD001306;
                                                                                                                                                                                                                                                                                                  ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  [nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEROPS; C03.01
MEROPS; C03.02
                                                                                                                                                                                                                                                                                                                               m; PF00073; rhv; 3.
n; PF00548; Cys-protease-3C; 1.
n; PF00680; RNA_dep_RNA_pol; 1.
n; PF00910; RNA_helicase; 1.
n; PF00947; Pico_P2A; 1.
n; PF01552; Pico_P2B; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY: P2A PROTEASE BELONGS TO PEPTIDASE FAMILY C3. SIMILARITY: P3C PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE CLEAVAGE BETWEEN VP4 AND VP2 IS AUTOCATALYTIC; VP1/P2A CATALYZED BY P2A; ALL OTHER CLEAVAGES ARE CATALYZED BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SWISS-PROT entry is copyright. It is produced through a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A34664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1COV; 08-MAR-96.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AND VP4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the Swiss Institute of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                               IPR002527; P1co_P2B.
IPR000605; RNA_helicase.
IPR001205; RNA_pol_P3D.
                                                                                                                                                                                                                                                                                                                                                                                                                            IPR000199; Cys-protease-3C IPR003138; Pico_PlA. IPR0000081; Pico_P2A.
                                                                                                                                                                                                                                                                                                                                                                                          IPR001
                                                                                                                                                           70
333
571
852
1002
1101
1430
1519
1541
                                                                                                                            1687
1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GNNYBT.
                                                                                                                                                                                                                                                                                                  125; Cys-protease-3C;
274; Pico_P2B; 1.
                                                                                                                                                                                                                                                                                                                     Pico_P2B;
Pico_P1A;
                                                                                                                                                                                                                                                                       polymerase;
                                                                                                                                                                                                                                                                                         Pico_P2A;
  1687
1701
16
177
469
487
510
516
556
593
650
865
873
1097
                                                                                                                                                         332
570
851
1001
1100
1429
1518
1540
1723
                                                                                                                                                                                                                                                                    protein; Core protein; Trans
pollymerase; Hydrolase; Thiol
R -> G (IN REF.
V -> D (IN REF.
P -> V (IN REF.
I -> V (IN REF.
F -> Y (IN REF.
O -> E (IN REF.
T -> N (IN REF.
F -> E (IN REF.
F -> E (IN REF.
F -> S (IN REF.
F -> S (IN REF.
F -> S (IN REF.
A -> P (IN REF.
                                                                                                                                                                                      PICORNAIN 2A.
CORE PROTEIN P2B.
CORE PROTEIN P2C.
CORE PROTEIN P3A.
                                                                                                                              PROTEASE
PROTEASE
                                                                                                                                    PICORNAIN 3C.
RNA-DIRECTED RNA POLYMERASE.
MYRISTATE (BY SIMILARITY).
PROTEASE (POTENTIAL).
                                                                                                                                                                              GENOME-LINKED PROTEIN VPG.
                                                                                                                                                                                                                             T PROTEIN VP4.
T PROTEIN VP3.
T PROTEIN VP1.
                                                                                                                             (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             There are no restrictions on as its content is in no
                                                                                                                                                                                                                                                                               Transferase; Myristate;
                              IWTTIRGSVCGD (IN
                                                                                                                                                                                                                                                                    protease; 3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LEMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               is
for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P3C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   outstation
                             2)
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POLG_CXB3W
Q66282;
                                                                                                                                                                                            -I- FUNCTION: IT IS THOUGHT THAT THE P2C PROTEIN ATTACHES MEMBRANES AND IS ASSOCIATED WITH VIRAL RNA SYNTHESIS.
-I- CATALYTIC ACTIVITY: Selective cleavage of Gin-1-Gly bo
                                                                                                                                                                                                                                         Knowlton K.U., Jeon E.S., Berkley R.W., Wessely R., Huber S.;
"A mutation in the puff region of VP2 attenuates the myocarditic phenotype of an infectious cDNA of the Woodruff virus.";
Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.
-i- FUNCTION: P2A AND THE P3C POLYPEPTIDES ARE PROTEASES THAT CLEAVE AT CERTAIN Q/G SITES IN THE POLYPROTEIN. THEY ARE CYSTEINE
                                                                                                                                                                                                                                                                                                                                                                           Genome polyprotein [Contains: Coat protein VP4 (P1A); Coat protein VP2 (P1B); Coat protein VP3 (P1C); Coat protein VP1 (P1D); Picornain 2A (EC 3.4.22.29) (P2A); Core protein P2B; Core protein P2C; Core protein P3A; Genome-linked protein VPG (P3B); Picornain 3C (EC 3.4.22.28) (Protease 3C) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3D)]. Coxsackievirus B3 (strain Woodruff).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         СХВЗИ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CONFLICT
                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=103904;
                                                                                                                                                                                                                                                                                                                                                                Viruses; ssRNA positive-strand viruses, no DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                              L5-JUL-1999 (Rel. 38, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5-JUL-1999 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 EALFQG
                  PTM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE I CLEAVAGE BETWREN VP4 AND VP2 IS AUTOCATALYTIC; VP1/P21 CATALYZED BY P2A; ALL OTHER CLEAVAGES ARE CATALYZED BY SIMILARITY: P2A PROTEASE BELONGS TO PEPTIDASE FAMILY C3 SIMILARITY: P3C PROTEASE BELONGS TO PEPTIDASE FAMILY C3 SIMILARITY: P3C PROTEASE BELONGS TO PEPTIDASE FAMILY C3
                                                                                                                          be substituted for c
CATALYTIC ACTIVITY:
                                                                                                                                                            poliovirus polyprotein. In other picornavirus reactions Glu
substituted for Gln, and Ser or Thr for Gly.
CATALYTIC ACTIVITY: Selective cleavage of Tyr-|-Gly bond in
                                                                                         SUBUNIT: THE VIRUS CAPSID EACH OF WHICH IS COMPOSED
                                                                                                                          picornavirus polyprotein. In other picornavirus reactions Glube substituted for Gln, and Ser or Thr for Gly.

CATALYTIC ACTIVITY: N nucleoside triphosphate - N diphosphate
                                                                                                                                                                                                                                  PROTEASES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EALFQG 1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity 100 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1880
2001
2095
2115
2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1824
1867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ΑĄ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 243451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₹
                                                                                         IS COMPOSED OF 60 ICOSAHEDRAL UNITS, OF ONE COPY EACH OF PROTEINS VP1, VP2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ************
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1B5ECE3DA47338FF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NO ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AND AND AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64
                                                                                                                                                                                                bond
                                                                                                                                                                                                                        TO VESICULAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                 í'n
                                                                                                                                                                                     may
                                                                                                                                                                                                 the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                  may
                                                                                                                                                                                      ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

SWISS-PROT entry is copyright.

It is produced through a collaboration

Institute of Bioinformatics

and the

EMBL outstation

be

```
Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR004004; Calici_pol_hel.
InterPro; IPR000199; Cys-protease-3C.
InterPro; IPR000198; pico_pla.
InterPro; IPR000181; pico_p2a.
InterPro; IPR0005827; pico_p2a.
InterPro; IPR000505; RNA_helicase.
InterPro; IPR001205; RNA_helicase.
InterPro; IPR001205; RNA_pol_p3D.
InterPro; IPR001205; RNA_pol_p3D.
InterPro; IPR001676; RNv.
Pfam; PF00073; rNv; 3.
Pfam; PF00073; rNv; 3.
Pfam; PF00548; Cys-protease-3C; 1.
Pfam; PF00548; Cys-protease-3C; 1.
Pfam; PF00940; RNA_dep_RNA_pol; 1.
Pfam; PF00940; RNA_helicase; 1.
Pfam; PF0095226; Pico_p2a; 1.
Pfam; PF005226; Pico_p2a; 1.
Pfam; PF01552; Pico_p2a; 1.
Pfam; PF01552; Pico_p2a; 1.
                                                     CXB5P

POLG_CXB5P

                 Enterovirus.
NCBI_TaxID=103907.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACT_SITE
ACT_SITE
SEQUENCE
                                                 Viruses; ssRNA positive-strand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEROPS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS; PRO0918; CALICVIRUSNS.
Probom; PD001125; Cys-protease-3C;
Probom; PD00174; Ptoc P2B; 1.
Probom; PD001306; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    between
the Euro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Polyprotein; RNA-directed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; U57056; AAB02228.1; -. HSSP; Q83744; 1COV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires
                                                                                                                                                                                                                                                                                                                                                                                                  1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tities requires a license agreement (S send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ween the
European
                                                                                                                                                                                                                                                                                                                                                              EALFOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; C03.011;
C03.022;
                                                                                                                                                                                                                                                                                                                                                                                                                                        6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            non-profit institutions as long and this statement is not removed. requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1687
1701
2185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         333
571
852
1002
1101
1430
1519
1541
1724
                                                                                                                                                                                                                                                                                                                                                                                                    σ
                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RNA F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Swiss Institute of Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ă,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ιoď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69
332
570
851
1001
1100
1429
1518
1540
1723
2185
2185
21687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   243680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CÓAT PROTEIN VP4.
COAT PROTEIN VP2.
COAT PROTEIN VP3.
COAT PROTEIN VP1.
PICORNAIN 2A.
CORE PROTEIN P2B.
CORE PROTEIN P2C.
CORE PROTEIN P3A.
GENOME-LINKED PROTEIN VPG.
PICORNAIN 3C.
                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RNA-DIRECTED RNA POLYMERASE.
MYRISTATE (BY SIMILARITY).
PROTEASE 3C (POTENTIAL).
PROTEASE 3C (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hydrolase; Thiol protease
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 30; DB
Pred. No. 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FD93A677904252FA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (See http://www.isb-sib.ch/announce/
                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Transferase; Myristate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Usage by
                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                   stage;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                 Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in
                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          commercia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                its
                                                                                                                                                                                                                                                                                                                                                                                                                                  0
       Interpro; IPR000199; Cys-protease-3C.
Interpro; IPR0001919; pico_p2A.
Interpro; IPR000119; pico_p2A.
Interpro; IPR000081; pico_p2A.
Interpro; IPR0000527; pico_p2B.
Interpro; IPR00005527; pico_p2B.
Interpro; IPR001205; RNA_pol_p3D.
Interpro; IPR001205; RNA_pol_p3D.
Interpro; IPR001205; RNA_pol_p3D.
Interpro; IPR001676; RNA_pol_p3D.
Interpro; IPR001676; RNA_pol_p3D.
Interpro; IPR001676; RNA_pol_p3D.
Interpro; IPR001676; RNA_pol_p3D.
Interpro; IPR001676; RNA_pol_p3D.
Interpro; IPR001676; RNA_pol_p3D.
Interpro; IPR00548; Cys-protease-3C; 1.
Pfam; PF00548; Pico_p2B; 1.
Pfam; PF001552; Pico_p2B; 1.
Pfam; PF00226; Pico_p1A; 1.
Procom; PD001125; Cys-protease-3C; 1.
Procom; PD001125; Cys-protease-3C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  [1]
SEQUENCE FROM N.A.
MEDLINE-93260398; F
Zhang G., Wilsden (
       CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                     Polyprotein;
RNA-directed
                                                                                                                                                                                                                                                                    ProDom; PD001125; Cys-protease-3C; ProDom; PD001274; Pico_P2B; 1. ProDom; PD001306; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Complete nucleotide sequence of a coxsackie B5 virus and its relationship to swine vesicular disease virus.";

J. Gen. Virol. 74:845-853(1993).

-!- FUNCTION: P2A AND THE P3C POLYPEPTIDES ARE PROTEASES THAT CLEAVE AT CERTAIN Q/G SITES IN THE POLYPROTEIN. THEY ARE CYSTEINE PROTEASES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 use by non-profit institutions as lon modified and this statement is not removentitles requires a license agreement (s or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entre the European Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEROPS; C03.011; -. MEROPS; C03.022; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIR; JQ2021; JQ2021.
HSSP; P21404; 1D4M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEROPS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; X67706; CAA47944.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <del>'</del>-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION: IT IS THOUGHT THAT THE P2C PROTEIN ATTACHES TO VESIC MEMBRANES AND IS ASSOCIATED WITH VIRAL RNA SYNTHESIS.

CATALYTIC ACTIVITY: Selective cleavage of Gin-[-Gly bond in th poliovirus polyprotein. In other picornavirus reactions Glu massubstituted for Gln, and Ser or Thr for Gly.

CATALYTIC ACTIVITY: Selective cleavage of Tyr-[-Gly bond in th picornavirus polyprotein. In other picornavirus reactions Glu be substituted for Gln, and Ser or Thr for Gly.

CATALYTIC ACTIVITY: N nucleoside triphosphate = N diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VP3. AND VP4.

PYM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE PIPM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE PIPMED AND VP2 IS AUTOCATALYTIC; VP1/P2A ICATALYZED BY P2A; ALL OTHER CLEAVAGES ARE CATALYZED BY P3A PROTEASE BELONGS TO PEPTIDASE FAMILY C3.

SIMILARITY: P3C PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBUNIT: THE VIRUS CAPSID EACH OF WHICH IS COMPOSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROTEASES.
FUNCTION: IT IS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (RNA)(N)
                                         70
331
569
852
1002
1101
1430
1519
                                                                                                                                                                                                                                                        Coat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1D4M
                                                                                                                                                                                                                                   polymerase;
       330
568
851
1001
1100
1429
1518
1723
2185
                                                                                                                                                                                                                                                        protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PubMed=8388019;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      institutions as long as its content
                                                                                                                                                                                                                                                      Core
                                                       COAT PROTEIN VP1.
PICORNAIN 2A.
CORE PROTEIN P2B.
CORE PROTEIN P2C.
CORE PROTEIN P3A.
GENOME-LINKED PROTEIN V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      is not removed.
PICORNAIN 3C.
RNA-DIRECTED RNA POLYMERASE
MYRISTATE (BY SIMILARITY).
                                                                                                                                                                                                                                     Hydrolase; Thiol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of
SI
                                                                                                                                                                                                                                                  protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ONE COPY
                                                                                                                                                     I PROTEIN VP4.
I PROTEIN VP2.
I PROTEIN VP3.
I PROTEIN VP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (See http://www.isb-sib.
                                                                                                                                                                                                                                                  Transferase; Myristate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OF 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Usage
                                                                                                                                                                                                                                 protease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OF PROTEINS VP1, VP2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P3C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TO VESICULAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ĺS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a collaboration -
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 may
```

CHAIN CHAIN CHAIN CHAIN CHAIN CHAIN CHAIN CHAIN

GIAIT

POLG_CX
ID POLG_CX
ID POLG_CX
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC
AC QC

Š

Matches

밁

1425

```
RESULT

ID LOCATION

AC PSYL

DE COCC P1:

RRA ME SE P2:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

CCC CCC P1:

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 6
InterPro: IPR000199; Cys-protease-3C.
InterPro: IPR003138; Pico_PlA.
InterPro: IPR00081; Pico_P2A.
InterPro: IPR002527; Pico_P2B.
InterPro: IPR002527; Pico_P2B.
InterPro: IPR001605; RNA_Pellcase.
InterPro: IPR001205; RNA_PellP3D.
InterPro: IPR001676; Rhv.
Pfam: PF00073; rhv; 3.
Pfam: PF00680; RNA_dep_RNA_pol; 1.
Pfam: PF00680; RNA_dep_RNA_pol; 1.
Pfam: PF00910; RNA_helicase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    J. Gen.
-1- FUNC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACT_SITE
ACT_SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-AUG-1990 (Rel. 15, Created)
01-AUG-1990 (Rel. 15, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2007 (Rel. 41, Last annotation update)
Genome polyprotein [Contains: Coat proteins VP1 TO VP4; Core protein P2A TO P2C, P3A; Genome-linked protein VPG; Picornain 3C
(EC 3.4.22.28) (Protease 3C) (P3C); RNA-directed RNA polymerase P3D
(EC 2.7.7.48)]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _SVDVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1425 EALFOG 1430
                                                                                                                                                                                                                                                                                                                                                                   PIR; A31331; (
HSSP; P21404;
                                                                                                                                                                                                                                                                                                          MEROPS; C03.011;
MEROPS; C03.022;
                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; D00435; BAA00337.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A. MEDLINE-89279274; PubMed-2543767;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "The complete nucleotide sequence of swine vesicular disease virus.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Swine vesicular disease virus (strain H/3 ′76).
Viruses, ssRNA positive-strand viruses, no DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P16604;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  petween
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Inoue T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=12076;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POLG_SVDVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VP3, AND VP4. )
PTM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE PROTEINS
SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUBUNIT: THE VIRUS CAPSID EACH OF WHICH IS COMPOSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                poliovirus polyprotein. In other picornavirus reactions Glu me
substituted for Gln, and Ser or Thr for Gly.
CATALYTIC ACTIVITY: N nucleoside triphosphate - N diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gen. Virol. 70:919-934(1989).

FUNCTION: IT IS THOUGHT THAT THE P2C PROTEIN ATTACHES TO VESICULAR MEMBRANES AND IS ASSOCIATED WITH VIRAL RNA SYNTHESIS.

FUNCTION: 92 POLYPEPTIDE IS A PROTEASE THAT CLEAVES AT CERTAIN Q/G SITES IN THE POLYPROTEIN. IT MAY BE A CYSTEINE PROTEASE.

CATALYTIC ACTIVITY: Selective cleavage of Gln--Gly bond in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          h 100.0%;
Similarity 100.0%;
6; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OF WHICH IS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Suzuki T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1687
1701
2185
                                                                                                                                                                                                                                                                                                                                                                                             ; GNNYSH.
                                                                                                                                                                                                                                                                                                                                                                   1D4M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1687
1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sekiguchi K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      243298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROTEASE 3C (POTENTIAL).
PROTEASE 3C (POTENTIAL).
W; 3F9EE29F90D59C6F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IS COMPOSED OF 60 ICOSAHEDRAL UNITS, OF ONE COPY EACH OF PROTEINS VP1, VP2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2185 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             no DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Core proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VP1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT 11
POLG_SVDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACT_SITE
ACT_SITE
SEQUENCE
                  This
                                                                                                                                  VITUS Res. 16:255-274(1990).

11. FUNCTION: IT IS THOUGHT THAT THE P2C PROTEIN ATTACHES TO VESICULAR PUNCTION: IT IS THOUGHT THAT VIRAL RNA SYNTHESIS.

12. FUNCTION: P3C POLYPEPTIDE IS A PROTEASE THAT CLEAVES AT CERTAIN O/G SITES IN THE POLYPROTEIN. IT MAY BE A CYSTEINE PROTEASE.

13. CATALYTIC ACTIVITY: Selective cleavage of Gln-1-Gly bond in the policytius polyprotein. In other picornavirus reactions Glu may be substituted for Gln, and Ser or Thr for Gly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1425 EALFQG 1430
                                                                                                                                                                                                                                        SEQUENCE FROM N.A.

MEDLINE=90364770; PubMed=216811;
Seechurn P., Knowles N.J., McCauley
"The complete nucleotide sequence of
disease virus.";
                                                                                                                                                                                                                                                                                                                                                                           POIG_SVDVU STANDARD; PRT; 2185 AA.
P13900; Q84794; Q84795; Q84795; Q84797; Q84798; Q84799; Q84800
Q84801; Q84802; Q84803; Q84804; Q94800
01-JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-Genome polyprotein [Contains: Coat proteins VPI TO VP4; Core
P2A TO P2C, P3A; Genome-linked protein VPG; Picornain 3C
(EC 3.4.22.28) (Protease 3C) (P3C); RNA-directed RNA polymera
(EC 2.7.7.48)].
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                ÷
                                                                                                                                                                                                                                                                                                                                                Swine vesicular disease virus (strain UKG/27/72).
Viruses: ssRNA positive-strand viruses, no DNA stage;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SVDVU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LIPID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProDom; PD001125; Cys-protease-3C; ProDom; PD001274; Pico_P2B; 1. ProDom; PD001306; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Polyprotein; Coat protein; Coar RNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                         NCBI_TaxID-12077;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 EALFQG 6
                             PTM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE PROTEINS. SIMILARITY: THE PROTEASE BELONGS TO PEPTIDASE FAMILY C3
                                                                                SUBUNIT: THE VIRUS CAPSID EACH OF WHICH IS COMPOSED
                                                                                                                        CATALYTIC ACTIVITY:
               SWISS-PROT entry is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF01552;
PF02226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6; Conserv
                                                                     AND VP4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             569
852
1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1430
1519
1541
1724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pico_P2B;
Pico_PlA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pico_P2A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>ξ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          330
568
1001
1100
1429
1518
1540
1723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243164
                                                                                                                        z
copyright. It is produced through a collaboration tute of Bioinformatics and the EMBL outstation -
                                                                                                                       nucleoside triphosphate - N diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Core protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hydrolase; Thiol protease; COAT PROTEIN VP4 (P1A).
COAT PROTEIN VP2 (P1B).
COAT PROTEIN VP3 (P1C).
COAT PROTEIN VP1 (P1D).
COAT PROTEIN VP1 (P1D).
CORE PROTEIN P2A (P2-3B).
CORE PROTEIN P2B (P2-5B).
CORE PROTEIN P2C (P2-X).
CORE PROTEIN P3A (P3-1B).
GENOME-LINKED PROTEIN VPG (P2-CONLARY P2C).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Œ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PICORNAIN 3C.
RNA-DEPENDENT RNA POLYMERASE P3D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROTEASE (POTENTIAL).
PROTEASE (POTENTIAL).
                                                                                 of IS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MYRISTATE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                COMPOSED OF 60
ONE COPY EACH C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5B2285DD94B2B3B6 CRC64
                                                                                                                                                                                                                                                        of.
                                                                                                                                                                                                                                                                     IJ.₩.;
                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                        pathogenic swine vesicular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transferase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protease;
                                                                                 OF PROTEINS
                                                                              ICOSAHEDRAL UNITS,
OF PROTEINS VP1, VP2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                       RNA polymerase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (P3B).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q84800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Myristate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

the Swiss

removed. U

Usage

and

for

There are no rest

restrictions tent is in

ons on its in no way commercial

```
RP SI
                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                     $\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00073; rhv; 3

Pfam; PF00548; Cys-protease-3C; 1

Pfam; PF00680; RNA_dep_RNA_pol; 1

Pfam; PF00910; RNA_helicase; 1.

Pfam; PF00947; Pico_P2A; 1.

Pfam; PF001552; Pico_P2B; 1

Pfam; PF02226; Pico_P1A; 1.
                                                                  _ECOSC

POLC_ECOSC

STANDARD; PRT; 2191 AA.

POLG_ECOSC

OS6474;

OS6474;

15-UUL-1999 (Rel. 38, Created)

15-UUL-1999 (Rel. 38, Last sequence update)

15-UUL-1999 (Rel. 38, Last sequence update)

15-UUL-1999 (Rel. 38, Last sequence update)

15-UUL-1999 (Rel. 38, Last sequence update)

15-UUL-1999 (Rel. 38, Last sequence update)

15-UUL-1999 (Rel. 38, Last sequence update)

15-UUL-1999 (Rel. 38, Last sequence update)

15-UUL-1999 (Rel. 38, Created in VP4 (PlA); Coat protein VP2

(PlB); Coat protein VP3 (PIC); Coat protein VP4 (PlA); Core protein VP2

(PIB); Coat protein P2B; Core protein P2B; Core protein P2A; Core protein P3A; Genome-linked protein VP4 (PJB); Picornain 32 (EC 3.4.22.28)

POLOS (PSC); RNA-directed RNA polymerase (EC 2.7.7.48) (P3D)].

Echovirus 6 (Strain Charles).
                                                                                                                                                                                                                                                                                                                                                                                                                                 ACT_SITE
ACT_SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR; S:
MEROPS
                                                                                                                                                                                                                                                                                                              1425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the European Bioinformatics Institute.
use by non-profit institutions as a
modified and this statement is not rem
entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Polyprotein;
RNA-directed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProDom; PD001125; Cys-protease-3C; ProDom; PD001274; Pico_P2B; 1. ProDom; PD001206; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LIPID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEROPS; C03.022;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or send an email to license@isb-sib.ch).
    SEQUENCE FROM N.A
                                                             Viruses; ssRNA positive-strand viruses,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                          _
                                                                                                                                                                                                                                                                                                            EALFQG
                                                                                                                                                                                                                                                                                                                                          EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; X54521; CAA38377.1; -. A30061; GNNYSV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S11670; S11670.
                                                                                                                                                                                                                                                                                                                                                                       6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | IPRO00199; Cys-protease-3C.
| IPRO03138; Pico_PlA.
| IPRO03181; Pico_P2A.
| IPR002527; Pico_P2B.
| IPR0025527; RNA_helicase.
| IPR001055; RNA_helicase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            331
852
1002
1101
1430
1519
1541
                                                                                                                                                                                                                                                                                                            1430
                                                                                                                                                                                                                                                                                                                                          σ
                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                  1687
1701
5 AA; 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            330
330
568
851
1001
1100
1429
1518
1540
1723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein;
                                                                                                                                                                                                                                                                                                                                                                                     100
                                                                                                                                                                                                                                                                                                                                                                                                                                   243363
                                                                                                                                                                                                                                                                                                                                                                                       .08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Core protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COAT PROTEIN VP3 (P1C).
COAT PROTEIN VP1 (P1D).
CORE PROTEIN P2A (P2-3B).
CORE PROTEIN P2B (P2-5B).
CORE PROTEIN P2C (P2-X).
CORE PROTEIN P3A (P3-1B).
GENOME-LINKED PROTEIN VPG (
                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                     Score 30; DB
Pred. No. 52;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PICORNAIN 3C.
RNA-DEPENDENT RNA POLYMERASE P3D
MYRISTATE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                PROTEASE (POTENTIAL)
PROTEASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rolase: Thiol I PROTEIN VPA
PROTEIN VPA
PROTEIN VPA
PROTEIN VPA
PROTEIN VPA
PROTEIN VPA
PROTEIN PAB
PROTEIN PAB
PROTEIN PAB
PROTEIN PAB
                                                                                                                                                                                                                                                                                                                                                                                                                                 C9B103052934E1B8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
52;
                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Transferase;
                                                          DNA stage; Picornaviridae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 (P1B).
3 (P1C).
1 (P1D).
1 (P2-3B).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protease; Myristate.
(PlA).
                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                  Length 2185;
                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (P3B).
                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                     0
 CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                       Pfam;
Pfam;
                                                                                                                                                    RNA-directed CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEROPS; C03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; U16283; AAA65044.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gratsch T.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROTEASES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P21404;
70
331
569
858
1008
1107
1436
1525
1547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1D4M.
```

```
This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/an or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "The genome of echovirus 6 ";
"The genome of echovirus 6 ";
Submitted (OCT-1994) to the EI
[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 persistent in vitro infection.";
Virology 201:341-348(1994).
-i- FUNCTION: P2A AND THE P3C PO
AT CERTAIN Q/G SITES IN THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 1526-2191 FROM N.A. MEDLINE=94240818; PubMed=8184543;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gratsch T.E., Righthand V.F.;
"Construction of a recombinant
                                                                                                                                                                                             VP3, AND VP4.

PTM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE PIPTS SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE PIPTS CLEAVAGE BETWEEN VP4 AND VP2 IS AUTOCATALYTIC; VP1/P2A IS CATALYZED BY P2A; ALL OTHER CLEAVAGES ARE CATALYZED BY P2SIMILARITY: P2A PROTEASE BELONGS TO PEPTIDASE FAMILY C3.

SIMILARITY: P3C PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                     (RNA)(N).
SUBUNIT: THE VIRUS CAPSID IS COMPOSED OF 60
EACH OF WHICH IS COMPOSED OF ONE COPY EACH C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATALYTIC ACTIVITY: Selective cleavage of Gln-1-Gly bond poliovirus polyprotein. In other picornavirus reactions c substituted for Gln, and Ser or Thr for Gly.

CATALYTIC ACTIVITY: Selective cleavage of Tyr-1-Gly bond
                                                                                                                                                                                                                                                                                                                                                                                                                    CATALYTIC ACTIVITY: N nucleoside triphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                           picornavirus polyprotein. In other picornavirus reactions be substituted for Gln, and Ser or Thr for Gly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POLYPEPTIDES A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Blackburn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of echovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R. V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ARE PROTEASES
                                                                                                                                                                                                                                                                                                                                                 ဝှု
                                                                                                                                                                                                                                                                                                                                                                      ICOSAHEDRAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                         •
                                                                                                                                                                                                                                                                                                                                                 PROTEINS VP1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     that established
                                                                                                                                                                                                                                                                                                                                                                                                                      N diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CYSTEINE
                                                                                                                                                                                                                                                   BY P3C.
                                                                                                                        h a collaboration EMBL outstation
                                                                                                                                                                                                                                                                                                   PROTEINS
                                                                                                                                                                                                                                                                                                                                                 UNITS,
VP1, VP2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l in th
hs Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'n
                            .ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLEAVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       may
                                                                                                   9
                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               be
                                                                     ıts
way
```

Pfam; PF01552; Pico_P2B; 1.
Pfam; PF02226; Pico_P1A; 1.
PRINTS; PR00918; CAILCVIRUSNS.
ProDom; PD001125; Cys-protease-3C;
ProDom; PD001274; Pico_P2B; 1.
ProDom; PD001306; Pico_P2A; 1. InterPro; IPR000081; InterPro; IPR002527; InterPro; IPR000605; InterPro; IPR001205; InterPro; IPR001676; n; PF00073; rhv; 3.
n; PF00548; Cys-protease-3C; 1
n; PF00680; RNA_dep_RNA_pol; 1
n; PF00910; RNA_helicase; 1.
n; PF00947; Pico_P2A; 1. IPR000199; IPR003138; RNA polymerase; 69 330 568 857 1007 1106 1435 1524 1524 1526 1729 protein; RNA_pol_P3D. Rhv. Pico_P2B. RNA_helicase. Calici_pol_hel. Cys-protease-3C Pico_PlA. Pico_P2A. Core protein; Transferase; Myristate; e; Hydrolase; Thiol protease. COAT PROTEIN VP2. COAT PROTEIN VP2. COAT PROTEIN VP3. COAT PROTEIN VP1. PICORNAIN 2A. COAT PROTEIN PD1. PICORNAIN 2A. CORE PROTEIN P2B. CORE PROTEIN P2C. CORE PROTEIN P3A. GENOME-LINKED PROTEIN VPG. PICORNAIN 3C. Core $\mu\mu$ ۳.

RNA-DIRECTED

RNA POLYMERASE

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FFFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Poyry T., Hyypiae T., Horsnell C., Kinne Molecular analysis of coxsackievirus Al of enteroviruses.";
Virology 202:982-987(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local :
               InterPro: IPR000199; Cys-protease-3C.
InterPro: IPR003138; Pico_PlA.
InterPro: IPR000081; Pico_PlA.
InterPro: IPR000527; Pico_PlB.
InterPro: IPR000605; RNA_helicase.
InterPro: IPR001205; RNA_pol_PlB.
InterPro: IPR001676; RNA_pol_PlB.
InterPro: IPR001676; RNA_pol_PlB.
InterPro: IPR001676; RNA_pol_PlB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Genome polyprotein [Contains: Coat protein VP4 (P1A); Coat protein VP2 (P1B); Coat protein VP3 (P1C); Coat protein VP1 (P1D); Core protein P2A; Core protein P2B; Core protein P2C; Core protein P3A; Genome-linked protein VPG (P3B); Picornain 3C (EC 3.4.22.28) (Protease 3C) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3D)].
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _CXA16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LIPID
ACT_SITE
ACT_SITE
SEQUENCE
                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and entitles requires a license agreement (See http://www.isb-s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q65900;
01-NOV-1997
                                                                                                                                   MEROPS; C03.022;
MEROPS; C03.UPA;
                                                                                                                                                               EMBL; U05876; HSSP; P03300;
                                                                                                                                                                                                          entities requires a license agreement (;
or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                       +
                                                                                                                                                                                                                                                                                                                                                                                                                   ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                               -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Coxsackievirus Al6 (strain G-10)
Viruses; ssRNA positive-strand vi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POLG_CXA16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1431 EALFQG 1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=69159;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                SUBUNIT: THE VIRUS CAPSID SUBUNIT: THE VIRUS CAPSID
                                                                                                                                                                                                                                                                                                                                                                                                                poliovirus polyprotein.
substituted for Gln, and
CATALYTIC ACTIVITY: N nu
                                                                                                                                                                                                                                                                                                               SIMILARITY: THE PROTEASE BE
                                                                                                                                                                                                                                                                                                                                                                                                                                                        O/G SITES IN THE POLYPROTEIN. IT MAY BE A CYSTEINE PROTEASE CATALYTIC ACTIVITY: Selective cleavage of Gln-|-Gly bond in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FUNCTION: IT IS THOUGHT THAT THE P2C PROTEIN ATTACHES TO VESICUI MEMBRANES AND IS ASSOCIATED WITH VIRAL RNA XVNTHESIS.
FUNCTION: P3C POLYPROTEIN IS A PROTEASE THAT CLEAVES AT CERTAIN O/G SITES IN THE POLYPROTEIN. IT MAY BE A CYSTEINE PROTEASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                  AND VP4.
SPECIFIC ENZYMATIC CLEAVAGES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2
1693
1707
2191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                             AAA50478.1; -.
                                                                                                                                                                 1POV.
rhv; 3.
Cys-protease-30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ξ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1693
1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245275
                                                                                                                                                                                                                                                                                                                                                                                                                               in. In other picornavirus reactions Glu may
and Ser or Thr for Gly.
                                                                                                                                                                                                                                                                                                                                                                                                                nucleoside triphosphate - N diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                          BELONGS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 30; DB
Pred. No. 52;
); Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MYRISTATE (BY SIMILARITY).
PROTEASE 3C (POTENTIAL).
PROTEASE 3C (POTENTIAL).
W; 47E70448B05716DB CRC64;
                                                                                                                                                                                                                                                                                                                                                                        SI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               viruses, no DNA stage; Picornaviridae
                                                                                                                                                                                                                                                                                                                                                                      ONE COPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kinnunen L., Hovi T.,
rus Al6 reveals a new o
                                                                                                                                                                                                                                                                                                                                         IN VIVO YIELD MATURE
                                                                                                                                                                                                                      (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                     OF 60 ICOSAHEDRAL UNITS, EACH OF PROTEINS VP1, VP2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 2191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              , Stanway G.;
genetic grou
                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                EMBL
                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                         PROTEINS
                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                             collaboration
                                                                                                                                                                                                                                                                               outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              group
                                                                                                                                                                                                                                      commercia;
                                                                                                                                                                                                                                                   no
                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 6
                                                                                                                                                      SEQUENCE FROM N.A.

MEDLINE-96435007; PubMed-8837893;

MEDLINE-96435007; PubMed-8837893;

Zimmermann H., Eggers H.J., Kruus W., Nelsen-Salz B.;

Zimmermann H., Eggers H.J., Kruus W., Nelsen-Salz B.;

"Complete nucleotide sequence and biological properties

infectious clone of prototype echovirus 9.";

Virus Res. 39:311-319(1995).

-i- FUNCTION: P2A AND THE P3C POLYPEPTIDES ARE PROTEASES

AT CERTAIN Q/G SITES IN THE POLYPROTEIN. THEY ARE CY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACT_SITE
ACT_SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                     POLG_EC09H
Q66849;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
 ÷
                                     -
                                                                                                -
                                                                                                                                                                                                                                                                                                                                                       15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Genome polyprotein [Contains: Coat protein VP4 (P1A); Coat protein VP2 (P1B); Coat protein VP3 (P1C); Coat protein VP1 (P1D); Picornain 2A
                                                                                                                                                                                                                                                                                                                                                                                                                                              EC09H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                           <del>-</del>
                                                                                                                                 -!- CATALYTIC ACTIVITY:
                                                                                                                                                                                                                                                                                                         (EC 3.4.22.29) (P2A); Core protein P2B; Core protein P2C; Core protein P3A; Genome-linked protein VPG (P3B); Picornain 3C (EC 3.4.22.28) (Protease 3C) (P3C); RNA-directed RNA polymerase (EC 2.7.7.48) (P3D)]. Echovirus 9 (strain Hill).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Polyprotein
RNA-directer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF02226;
                                                                                                                                                                                                                                                                                    Enterovirus
                                                                                                                                                                                                                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProDom; PD001306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProDom;
                                                                                                                                                                                                                                                                     NCBI_TaxID-103915;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 EALFQG
                                                                                          poliovirus polyprotein. In other picornavirus reactions of substituted for Gln, and Ser or Thr for Gly.

CATALYTIC ACTIVITY: Selective cleavage of Tyr-1-Gly bond
                     (RNA)(N).
SUBUNIT: THE VIRUS
EACH OF WHICH IS CO
                                                         picornavirus polyprotein. In other picornavirus reactions Glube substituted for Gln, and Ser or Thr for Gly.

CATALYTIC ACTIVITY: N nucleoside triphosphate - N diphosphate
                                                                                                                                                PROTEASES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EALFQG 1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF00680;
PF00910;
PF00947;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                irected RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PD001125; Cys-protease-3C; PD001274; Pico_P2B; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 6; Conser
AND VP4.
SPECIFIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      863
1013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pico_P2B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pico_P2A;
                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pico_P1A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RNA_dep_RNA_pol; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pico_P2A; 1.
protein; Core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        862
1012
1111
1440
1526
1548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                        COMPOSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            243209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1case;
                                    CAPSID
                                                                                                                                 Selective cleavage of Gln-|-Gly bond in the
                                                                                                                                                       P3C POLYPEPTIDES ARE PROTEASES THAT CLEAVE IN THE POLYPROTEIN. THEY ARE CYSTEINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W.
 CLEAVAGES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORE
CORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MYRISTATE (BY SIMILA PROTEASE (POTENTIAL) PROTEASE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENOME-LINKED PROTEIN VPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hydrolase; Thiol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RNA-DIRECTED RNA POLYMERASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PICORNAIN 3C.
                        SIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein;
                        COMPOSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04B3BCE572A76E38 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROTEIN VP2.
PROTEIN VP3.
PROTEIN VP1.
PROTEIN P2A.
PROTEIN P2B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROTEIN P2C.
PROTEIN P3A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROTEIN VP4
                                                                                                                                                                                                                                                                                                                                                                                                                                 2193
 Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
52;
 VIVO
                                                                                                                                                                                                                                                                                                                                                                                                                                 ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transferase;
                                  OF 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Length 2193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protease;
                        OF,
                                    ICOSAHEDRAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                         of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Myristate
                                    UNITS
                                                                                                                    Glu may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                  may
                                                                                                                      be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

CLEAVE

Glu may

may the

ьe

```
OLG_EC12T

OLG_EC12T

STANUAGE.

OLG_EC12T

STANUAGE.

OLG_EC12T

STANUAGE.

OLG_EC12T

STANUAGE.

OLG_EC12T

ID

POLG_EC12T

STANUAGE.

AC

Q66575; Q66576;

AC

Q66575; Q66576;

AC

Q66575; Q66576;

AC

Q66575; Q66576;

AC

15-JUL-1999 (Rel. 38, Careated)

DT

15-JUL-1999 (Rel. 38, Last sequence update)

DT

15-JUL-1999 (Rel. 41, Last annotation update)

DT

15-JUL-1999 (Rel. 41, Last annotation update)

DT

15-JUL-1999 (Rel. 38, Careated)

DE

Q60575; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60576; Q61.

Q60676; Q61.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pfam; pF00073; rhv; 3.

pfam; pF000748; Cys-protease-3C; 1.

pfam; pF000680; RNA_dep_RNA_pol; 1.

pfam; pF00910; RNA_helicase; 1.

pfam; pF00917; pico_p2A; 1.

pfam; pF001552; pico_p2A; 1.

pfam; pF02226; pico_p2A; 1.

pfam; pF02226; pico_p2A; 1.

prnNTS; pR00918; CALICVIRUSNS.

proDom; pD001136; Cys-protease-3C; 1

proDom; pD001136; pico_p2A; 1.

proDom; pD001374; pico_p2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Polyprotein;
RNA-directed
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
5
CHAIN
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACT_SITE
ACT_SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LIPID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  [nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match
                                                                                                                                                                                                                                                                                                                                                                                 1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLEAVAGE BETWEEN VP4 AND VP2 IS AUTOCATALYTIC: VP1/P2A I CATALYZED BY P2A; ALL OTHER CLEAVAGES ARE CATALYZED BY SIMILARITY: P2A PROTEASE BELONGS TO PEPTIDASE FAMILY C3. SIMILARITY: P3C PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                           EALFOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X84981; CAA59341.1; -. 091734; 1EV1.
                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; IPRO04004; IPRO00199; IPRO003138; IPR000081; IPR00052527; IPR000605; IPR000505; IPR001205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR001676;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70
331
570
860
1010
1109
1438
1527
1527
                                                                                                                                                                                                                                                                                                                                           1438
                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Coat protein; C
RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             69

330

569

859

1100

1108

11437

11526

11548

11731

2193

2193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein; Core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pico_P2B.
RNA_helicase.
RNA_pol_P3D.
                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Calici_pol_hel.
Cys-protease-3C.
Pico_PlA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pico_P2A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hydrolase; Thiol proteat
COAT PROTEIN VP4.
COAT PROTEIN VP2.
COAT PROTEIN VP3.
COAT PROTEIN VP1.
PICORNAIN 2A.
CORE PROTEIN P2B.
CORE PROTEIN P2C.
CORE PROTEIN P3A.
GENOME-LINKED PROTEIN V
PICORNAIN 3C.
                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RNA-DIRECTED RNA POLYMERASE.
MYRISTATE (BY SIMILARITY).
PROTEASE 3C (POTENTIAL).
PROTEASE 3C (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E6ADD3091293C64A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transferase; Myristate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protease
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 2193;
                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P3C.
                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                           re protein
2.28)
                                                                                                                                   VP2
                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                      InterPro; IPR00404; Calici_pol_he
InterPro; IPR000199; Cys-protease.
InterPro; IPR0001199; Cys-protease.
InterPro; IPR0003138; Pico_plA.
InterPro; IPR00081; Pico_plA.
InterPro; IPR002527; Pico_plB.
InterPro; IPR002527; Pico_plB.
InterPro; IPR001205; RNA_helicase.
InterPro; IPR001205; RNA_pol_p3D.
InterPro; IPR001205; RNA_pol_p3D.
InterPro; IPR001276; RNv.
Pfam; PF00073; rhv; 3.
Pfam; PF00073; Cys-protease-3C; 1
Pfam; PF00680; RNA_helicase; 1.
Pfam; PF00910; RNA_helicase; 1.
                                                                                                                                                                                                                ProDom;
ProDom;
ProDom;
                                                    CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  between the Swiss Institute of Bioinformat
the European Bioinformatics Institute. The
use by non-profit institutions as
modified and this statement is not removed.
entities requires a license agreement (See
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
STRAIN=W11d type;
MEDLINE=95364006; PubMed=7637032;
                                                                                                                                                                                                                                                                        Pfam; PF01552; Pico_P2B; 1.
Pfam; PF02226; Pico_P1A; 1.
PRINTS; PR0091B; CALICVIRUSNS
                                                                                                                                                                           Polyprotein; RNA-directed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEROPS; C03.011;
MEROPS; C03.022;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a coefficient the Swiss Institute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        acids.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kraus W., Zimmermann H., Zimmermann A., Eggers H.J., Nelsen-Salz "Infectious cDNA clones of echovirus 12 and a variant resistant against the uncoating inhibitor rhodanine differ in seven amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses; ssRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Echovirus 12 (strain Travis).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EACH OF WHICH IS COMPOSED OF ONE COPY EACH OF PROTEINS V VP3, AND VP4.

PTM: SPECIFIC ENZYMATIC CLEAVAGES IN VIVO YIELD MATURE P CLEAVAGE BETWEEN VP4 AND VP2 IS AUTOCATALYTIC: VP1/P2A I CATALYZED BY P2A; ALL OTHER CLEAVAGES ARE CATALYZED BY P SIMILARITY: P2A PROTEASE BELONGS TO PEPTIDASE FAMILY C3.

SIMILARITY: P3C PROTEASE BELONGS TO PEPTIDASE FAMILY C3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             picornavirus polyprotein. In other picornavirus reactions Glube substituted for Gln, and Ser or Thr for Gly.
CATALYTIC ACTIVITY: N nucleoside triphosphate - N diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: THE VIRUS CAPSID EACH OF WHICH IS COMPOSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      poliovirus polyprotein. In other picornavirus reactions Glu substituted for Gln, and Ser or Thr for Gly.
CATALYTIC ACTIVITY: Selective cleavage of Tyr-[-Gly bond in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROTEASES.
CATALYTIC ACTIVITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FUNCTION: P2A A
AT CERTAIN Q/G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [RNA](N).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X79047; CAA55650.1;
X77708; CAA54783.1;
P21404; 1D4M.
                                                                                                                                                                                                          PD001125; Cys-protease-3C;
PD001274; Pico_P2B; 1.
PD001306; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69:5853-5858(1995).
ION: P2A AND THE P3C POLYPEPTIDES ARE PROTEASES THAT (
RTAIN Q/G SITES IN THE POLYPROTEIN. THEY ARE CYSTEINE
                                                                                                                                                                                             Coat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          positive-strand
                                                                                                                                                                        polymerase;
                                                    69
330
568
859
1009
                                                                                                                                                                                             protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     RNA_helicase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cys-protease-3C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Calici_pol_hel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Selective
                                                                                                                                                                                             Core protein;
                                               ; Hydrolase; Thiol p
COAT PROTEIN VP4.
COAT PROTEIN VP2.
COAT PROTEIN VP2.
COAT PROTEIN VP1.
PICORNAIN 2A.
CORE PROTEIN P2B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        viruses,
                                                                                                                                                                                                                                                                                                                                                                          --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ONE COPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cleavage of Gln-|-Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     There
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ņ
                                                                                                                                                                                           Transferase; Myristate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OF 60
EACH C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Usage
                                                                                                                                                                    protease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ) ICOSAHEDRAL UNITS,
OF PROTEINS VP1, VP2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bond
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BY P3C
```

a collaboration -MBL outstation -

outstation

9

for

RESULT
POLG_EC
AC QO
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT 111
DT

Š ₽

1433

15

Query Ma Best Loc Matches

```
밁
                                                                             Ş
                                                                                                                                                                Search completed: May 20, 2003, 11:35:01 Job time: 2.14163 secs
                                                                                                     Query Match 100.0%; Score 30; DB 1; Best Local Similarity 100.0%; Pred. No. 52; Matches 6; Conservative 0; Mismatches C
                                                 1 EALFQG 6
||||||
|1433 EALFQG 1438
                                                                                                                                                             CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
LIPID
ACT_SITE
ACT_SITE
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
                                                                                                                                                           1695 16
1709 17
223 2
228 3
376 3
643 6
669 6
725 7
2094 20
                                                                                                                                                                                                                                                                                                          1109
1438
1527
1549
1732
                                                                                                                                                                                        1695
1709
223
228
376
643
669
725
                                                                                                                                                                            2094
                                                                                                                                                             94 C -
244803 MW;
                                                                                                                                                      CORE PROTEIN P2C.

CORE PROTEIN P3A.

GENOME-LINKED PROTEIN VPG.

PICORNAIN 3C.

RNA-DIRECTED RNA POLYMERASE.
MYRISTATE (BY SIMILARITY).

PROTEASE 3C (POTENTIAL).

PROTEASE 3C (POTENTIAL).

H -> Y (IN RHODAMINE-RESISTANT VARIANT).

G -> S (IN RHODAMINE-RESISTANT VARIANT).

I -> M (IN RHODAMINE-RESISTANT VARIANT).

Y -> C (IN RHODAMINE-RESISTANT VARIANT).

Y -> A (IN RHODAMINE-RESISTANT VARIANT).

V -> A (IN RHODAMINE-RESISTANT VARIANT).

C -> R (IN RHODAMINE-RESISTANT VARIANT).

C -> R (IN RHODAMINE-RESISTANT VARIANT).

C -> R (IN RHODAMINE-RESISTANT VARIANT).
                                                                                                       0; Indels
                                                                                                                              Length 2193;
                                                                                                       0;
                                                                                                     Gaps
                                                                                                     0
```

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                       Database
                                                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                         Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              on:
                                                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                        B B
                                                                                                                                                Score
                                                                                                                                                                                                                                                                                                                                                                                                                        seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ę,
                                                                                                                                                                                                                                                                                                                                                                                                                        length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                            SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria
3: sp_fung1:*
                                                                                                                                          Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                               hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         May 20, 2003, 10:12:24 ; Search time 0.413981 Seconds (without alignments) 2986.328 Million cell updates/sec
  100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-081-408-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenCore version 5.1.5 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                        sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                    sp_archea:*
sp_bacteria:*
                                                                                                                                                                                                                                                                                           sp_phage:*
                                                                                                                                                                                                                                                                                                    sp_organelle:*
                                                                                                                                                                                                                                                                                                           sp_mhc:*
                                                                                                                                                                                                                                                                                                                            sp_invertebrate: *
                                                                                                                                                                                                                                                                 sp_rodent:*
sp_virus:*
                                                                                                                                                                                                                                                                                  sp_plant:*
                                                                                                                                                                                                                                                                                                                                      human:*
  989
1866
1930
2063
2063
2063
2071
2174
2174
2174
2178
2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gapext 0.5
                                                                                              10
12
                 Q8TFN4
Q91QW1
Q8V0C4
Q8V0C3
Q8V0C3
Q8QUZ6
Q9PYB7
Q9PYB6
Q9PYB6
                                                                                                                      Q91QX8
                                                                                                                                                Ħ
                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                 671580
                        Q91qx8 human echov Q9rnm8 zymomonas m Q9rnm8 zymomonas m Q93vw4 arabidopsis Q85082 human polio Q9scm5 arabidopsis Q8tfn4 colletotric Q91qw1 human echov Q8v0c4 human polio Q8v0c3 human polio Q8v0c2 human polio Q8v0c2 human polio Q8quz6 porcine ente Q9pyb7 bovine ente
                                                                                                                                              Description
                Q8v0c2
Q8quz6
Q9pyb7
Q9pyb6
Q8v639
human coxsa
human coxsa
human coxsa
                         8
                                                                                            RESULT 1
Q91QX8
RESULT 2
                                        δÃ
                                                          Matches
                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                        01-DEC-2001
01-DEC-2001
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                             NON_TER .
SEQUENCE
                                                                                                           NON_TER
                                                                                                                                                                                                                                                                                                 0910x8;
                        Enterovirus.
NCBI_TaxID=41846;
                                                                                                                                                                                                                                                                Polyprotein (Fragment).
                                                                                                                                                                                                                                                        Human echovirus 30
                                                        Similarity 100 6; Conservative
                                                                                           287
287 AA;
                                         σ
                                                                                                                                                                                                                                                                        (TrEMBLIEL. 19,
(TrEMBLIEL. 19,
(TrEMBLIEL. 20,
                         277
                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                          >266
287
32023 MW;
                                                                100.0%;
                                                          0
```

30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
0.							0		0			0	0			0	0		0			0			.0	0	100.0	
20	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	2185	18
																											12	
Q98595	Q84792	Q9DIF1	Q9IM09	Q8V640	Q914E0	Q914E1	Q98Y36	Q993S1	Q9DY01	Q9DY02	Q9DHE1	Q9QF31	Q9QF52	Q9QRL8	Q9WQJ0	Q9WPJ0	Q8V635	Q999Y5	Q9YLG5	Q9QSN9	Q88445	Q9IFIO	Q9E7C2	Q9E7C3	Q9E7C4	Q9PYF2	Q66338	Q9YXE3
				٠	-																							
Q98595	m	Q9d1f1	10	Q8v640	10	10	Q98y36	993s	9dy0	9dy0	9dhe	9qf3	9qf5	9qr1	50	td _M 6	8v63	¥666	9y1g	šb6	884	911	9e.	9	9e	gge	Q66338	9
human pol	ď	nan po	ալ գ	nan e	human echov	human echov	enterovir	01	n en	Þ	human ente	00				human ente	_	0	Þ	₽	ine ve	æ	_	J	3	0	5	human cox
lio	10	10	ē	chov	δ	ΙΟV	rus	su.	O.	er	er	Sa	er	er	er	er	ο̈́	Su.	sa	Sa	ic	íc	Sa	sa	Sa	csa	Ø	(Sa

ALIGNMENTS

287

Å

```
swimming pools.";
Submitted (NOV-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AJ295214; CAC38992.1; -.
InterPro; IPR000605; RNA_helicase.
Pfam; PF00910; RNA_helicase; 1.
                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.

MUSCIllo M., La Rosa G., Marianelli C., Capobianchi M.R.,

Zaniratti S., Cattani P., Manzara S., Fadda G., Comparcola

Ticca F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Viruses; ssRNA positive-strand viruses,
                                                                                                                                                                                                                                                                                              "A phylogenetic analysis of the two echovirus 30 isolated in Rome (Italy) in 1997 from an outbreak of aseptic meningitis associated with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
Last sequence update)
Last annotation update)
Score 30; DB
Pred. No. 32;
); Mismatches
                                                                                                                                      CORE PROTEIN P2C.
                                                                                           F284551D994A298C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    no DNA stage; Picornaviridae;
                                            DB 12;
  0
                                          Length 287;
  Indels
                                                                                                                                                                                                                                                                                                                                                                   .
,
  0;
Gaps
  0;
```

```
PRESSULT RESULT 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9RNM8
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
ACCOCK
AC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Um H.W., kany ....
"Sequence analysis of 4lbiv ......"
"Sequence analysis of 4lbiv ....."
"RembL/Aenblo3170; MurB.
"RembL/Aenblo3170; MurB.
"Refam; PF01565; FAD_binding_4; 1.
"Pfam; PF01565; FAD_binding_4; 1.
"Pfam; PF02873; MurB.C; 1.
"Pfam; PF02873; MurB.C; 1.
"Pfam; PF02873; MurB.C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q93VW4;
                                Yamada K., Liu S.X., Sakano H., Pham P.K., Banh J., Chung M.K., Goldsmith A.D., Lee J.M., Quach H.L., Tang C., Toriumi M., Yu G., Bowser L., Carninci P., Chen H., Cheuk R., Hayashizaki Y., Ishida Jones T., Kamiya A., Karlin Neumann G., Kawai J., Kim C., Koesema Lam B., Lin J., Meyers M.C., Miranda M., Narusaka M., Nguyen M., Palm C.J., Sakurai T., Satou M., Seki M., Shinn P., Southwick A., Shinozaki K., Davis R.W., Ecker J.R., Theologis A., "Full Length cDNA of gene T8H10.70/AT3g57470 (GI:6706418)."; Submitted (MAY-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yamada K., Liu S.X., Pham P.K., Banh J., Banno F., Dale J.M., Goldsmith A.D., Jiang P.X., Lee J.M., Onodera C.S., Quach H.L., Tang C., Toriumi M., Yamamura Y., UG., Yu S., Bowser L., Carninoi P., Chen H., Cheuk R., Hayashizaki Y., Ishida J., Jones T., Kamiya A., Karlin-Neumann G., Kawai J., Kim C., Koesema E., Lam B., Lin J., Meyers M.C., Miranda M., Narusaka M., Nguyen M., Palm C.J., Sakurai T., Satou M., Seki M., Shinn F., Southwick A., Tracy S.E., Shinozaki K., Davis R.W., Ecker J.R., Theologis A., Shinozaki K., Davis R.W., Ecker J.R., Theologis A., Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassiqales; Brassicaceae; Arabidopsis.
NCBI_TaxID-3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
01-MAR-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat
UDP-N-acetylenolpyruvoylglucosamine reductase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Putative protease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=ZM4;
Um H.W., Kang H.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zymomonas
Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9RNM8;
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9RNM8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID-542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zymomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Proteobacteria; alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mobilis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
Peptidase_M16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19,
19,
20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , Created)
, Last sequence up
, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fosmid clone of Zymomonas mobilis. EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7DBCA8C285C06B36 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sphingomonadaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 310;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                        M (4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
RESULT
109SCM5
AC 095
AC 095
AC 095
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
AC 097
A
                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                      ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DR DR DR SQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                Q9SCM5 PRELIMINARY;
Q9SCM5;
01-MAY-2000 (TrEMBLrel. 13, C
01-MAY-2000 (TrEMBLrel. 13, I
01-JUN-2002 (TrEMBLrel. 21, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
MEDLINE-81273079; PubMed-6267593;
Anderson C.W., Kitamura N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR000169; SHprot_acsite.
Pfam; PF00675; Paptidase_M16; 1.
PROSITE; PS00143; INSULINASE; UNKNOWN_1.
PROSITE; PS00639; THIOL_PROTEASE_HIS; UNKNOWN_1.
Protease.
                                    Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eueurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR000199; Cys-protease-3C.
InterPro; IPR001205; RNA_pol_p3D.
Pfam; PF00548; Cys-protease-3C; 1.
Pfam; PF00680; RNA_dep_RNA_pol; 1.
ProDom; PD001125; Cys-protease-3C; 1.
NOW MEDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Pollovirus replication proteins: RNA sequence en sites of proteolytic processing."; Proc. Natl. Acad. Sci. U.S.A. 78:3464-3468(1981). EMBL; M17494; AAA46911.1;
  NCBI_TaxID=3702;
[1]
                                                                                                                  Protease-like protein. T8H10.70.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Semler B.L., Anderson Wimmer E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Enterovirus.
NCBI_TaxID=12080;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-NOV-1996
01-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q85082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  naman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Polyprotein precursor (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q85082;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                235
                                                                                                                                                                                                                                                                          u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٠
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                          1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EALFQG
                                                                                                                                                                                                                                                                                                                                   EALFOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                poliovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ssRNA positive-strand viruses,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1
6
93
115
1297
757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      522 AA;
                                                                                                                                                                                                                                                                                                                                   φ
                                                                                                                                                                                                                                                                                                                                                                      σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (TrEMBLrel. 01, Created)
(TrEMBLrel. 01, Last sequence update)
(TrEMBLrel. 19, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    σ
                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          84827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59556 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MW;
                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                      Last sequence update)
Last annotation updat
                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
; C1B86D48A9D49060 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                           Score 30; DE
Pred. No. 86;
); Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 30; DB
Pred. No. 58;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81836CBF3CE011A2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RNA sequence encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                 96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          no DNA stage;
                                                                                                                                                                                                                                  ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                   DΒ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rothberg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                   12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10;
                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P.G.,
                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                           eudicots;
                                                                           Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              522;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   757;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P3-1b and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wishart
                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
RESULT
ID 100
ID 100
DT 00
DT 00
DT 00
DT 00
CS H
COC V
CC V
RC V
RC
                                                                                                                                                                                                              밁
                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                             Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 6
                                                                                                                                                                                                              "A csm-like chitin syngraminicola.";
Submitted (AUG-2001) 1
EMBL; AY052547; AAL23:
SEQUENCE 1866 AA;
                                                                  Q91QW1;
01-DEC-2001
01-DEC-2001
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                   01-JUN-2002
01-JUN-2002
01-JUN-2002
                                                                                                                                              1145
                        Enterovirus.
NCBI_TaxID=41846;
                                          Viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted EMBL; AL13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Benes V.,
Mayer K.F.
                                                 Polyprotein
Human echovi
                                                                                                     Q91QW1
                                                                                                                                                                                                                                                                                                                   graminicola).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR001431; Peptidase_M16.
InterPro; IPR000169; SHprot_acsite.
Pfam; PF00675; Peptidase_M16; 1.
PROSITE; PS00143; INSULINASE; 1.
PROSITE; PS00639; THIOL_PROTEASE_HIS;
                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                  NCBI_TaxID=31870;
                                                                                                                                                                                                                                                                                                 Sordariomycetes incertae
                                                                                                                                                                                                                                                                                                                          Colletotrichum graminicola
                                                                                                                                                                                                                                                                                                                                          Chitin synthase
                                                                                                                                                                                                                                                          Werner
                                                                                                                                                                                                                                                                                                                                                                                     Q8TFN4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted
EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                         Sukaryota; Fungi;
                                                                                                                                                                                                                                                                                                                                                                                                                               235
                                                                                                                                                                                                                                                                                                                                                                                                      σ
                                                                                                                                                             -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis sequencing project; bmitted (JAN-2000) to the EMBL/GenBank/DDBJBL; AL133248; CAB66104.1;
                                                                                                                                                     EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                       EALFQG
                                                                                                                                            EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                               EALFQG
                                                 echovirus
                                                                                                                                                                              Similarity 6; Conserv
                                                                                                                                                                                                                                                        FROM N.A.
Deising
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FROM N.A.
, Rechmann S.,
F.X., Quetier
d (NOV-1999) t
                                         ssRNA positive-strand
                                                                                                                                                                                                                                                                                                                                                  2 (TrEMBLrel.
2 (TrEMBLrel.
2 (TrEMBLrel.
                                                                                                                                                                             100.
nilarity 100.
Conservative
                                                                                                                                            1150
                                                                 (TrEMBLrel.
                                                                                                                                                             σ
                                                         (Fragment).
                                                                                  (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                               σ
                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                              -2001) to the 1
AAL23719.1;
AA; 207182 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₹
                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                 Ascomycota; Pencertae sedis;
                                                                                                                                                                                                                                                H.B.;
synthase of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             s:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                113070 MW;
                                                                  19,
19,
21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Borkova D., Ansorge W., Salanoubat M.;
                                                                                                                                                                                                                                                                                                                                                   21,
21,
21,
                                                                                                                                                                                      .0%;
                                                                                                                                                                                                                                                                                                                          (Anthracnose
                                                                Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                              M.
                                                                                                                                                                                                                                                                                                                                                  Created)
Last sequence up
                                                                                                                                                                              0
                                                                                                                                                                                                                               EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL/GenBank/DDBJ
                                                                                                                                                                             Score 30; DE
Pred. No. 2.2
D; Mismatches
                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                 Pezizomycotina; S
s; Phyllachorales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score
Pred.
                                         viruses,
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LHIS; UNKNOWN_1.
E12CF68A4FE14E96
                                                                                                                                                                                                              9126E926330DE1BF CRC64;
                                                                                                                                                                                                                                                maize
                                                                                                   1930
                                                                                                                                                                                                                                                                                                                                                                                    1866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30;
                                         5
                                                                                                                                                                                                                                                                                                                         fungus) (Glomerella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.1e+02;
                                                                                                                                                                                               B
                                                                                                                                                                                                                                               pathogen
                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 10;
                                                                                                                                                                                     .2e+02;
                                                                                                                                                                                                                                                                                                                                                           update)
                                         DNA
                                                                                                                                                                                              ω
••
                                                                  update)
                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                Sordariomycetes;
s; Phyllachoraceae;
                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            databases
                                         stage;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mewes H.W.,
                                                                                                                                                                                             Length 1866;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CRC64;
                                                                                                                                                                                                                                                Colletotrichum
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                       Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lemcke
                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>~</u>
                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
RESULT
Q8V0C4
              밁
                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 6
SEQUENCE FROM N.A.
STRAIN-3788ALB96;
MEDLINE-21635047; PubMed-11773144;
MEDLINE-21635047; PubMed-11773144;
MARTURANO J., Fiore L.;
"Investigation of the Presence of Recombinant Polioviruses Population in Albania during the 1996 Outbreak.";
J. Ciin. Microbiol. 40:316-317(2002).
EMBL; AY056701; AAL33795.1; -.
InterPro; IPR000199; Cys-protease-3C.
InterPro; IPR000345; CytC_heme_bind.
                                                                                                                                                                                                                                          01-MAR-2002
01-MAR-2002
01-JUN-2002
Polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro: IPR000199; InterPro: IPR0003138; InterPro: IPR00081; InterPro: IPR002527; InterPro: IPR001675; InterPro: IPR001675; InterPro: IPR001605; InterPro: IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR001205; IPR00120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                  1434 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             swimming pools.";
Swimming pools.";
Submitted (NOV-2000) to the
Submitted (NOY-2000) to the
A17295172; CAC39011.1;
                                                                                                                                                                                                           Viruses;
                                                                                                                                                                                                                                                                                                                        Q8V0C4
                                                                                                                                                                                NCBI_TaxID-12080;
                                                                                                                                                                                                                               Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEROPS; C03.01
MEROPS; C03.02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "A phylogenetic
(Italy) in 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zaniratti S.,
                                                                                                                                                                                                                                                                                                                                                      æ
                                                                                                                                                                                                                                                                                                                                                                                                                                 1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 am: PF00548; Cys-protease-3C; 1.
um: PF02226; Pico_P1A; 1.
mp: PF00547; Pico_P2A; 1.
mp: PF00552; Pico_P2B; 1.
mp: PF00552; Pico_P2B; 1.
np: PF00580; RNA den nuri
                                                                                                                                                                                                                             poliovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ٦,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PF00910;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F00680; RNA_dep_RNA_pol; 1.
F00910; RNA_helicase; 1.
PD001125; Cys-protease-3C;
PD001274; Pico_P2B; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PD001306;
                                                                                                                                                                                                           SSRNA
                                                                                                                                                                                                                                       (TrEMBLrel.
(TrEMBLrel.
(TrEMBLrel.
(Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            331
569
1000
1099
1439
1528
1538
                                                                                                                                                                                                                                                                                                                                                                                                    1439
                                                                                                                                                                                                                                                                                                                                                                                                                                 σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; ilarity 100.0%; Conservative
                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      La Rosa (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 -
                                                                                                                                                                                                           positive-strand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           >999
>1098
>1438
>1527
>1549
>1732
>1930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                >330
>568
>863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .co_P2A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     G., Marianelli C
i P., Manzara S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pico_P2B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pico_P2A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cys-protease-3C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           214968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RNA_helicase.
                                                                                                                                                                                                                                                         20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         outbreak
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of the
                                                                                                                                                                                                                                                         Created)
Last sequence
Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₩.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COAT
COAT
CORE
CORE
CORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VIRION PROTEIN VPG. PROTEINASE 3C. RNA POLYMERASE P3D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score
Pred.
                                                                                                                                                                                                           viruses,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       two
of
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                       sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          559CFD7CC4F52FB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROTEIN
PROTEIN
PROTEIN
PROTEIN
PROTEIN
PROTEIN
PROTEIN
PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aseptic me
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C., Capobianchi M.R.,
., Fadda G., Comparcola
                                                                                                                                                                                                                                                                                                                      2063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30;
                                                                                                                                                                                                           o
                                                                                                                                                                                                                                                                                                                      ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VP4.
VP2.
VP3.
VP1.
2A.
2B.
2C.
3A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .3e+02;
                                                                                                                                                                                                           DNA stage;
                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      meningitis associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1930;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                           Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'n
                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rome
                                                                                     the
                                                                                     Hit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      with
                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
RESOLT QUECAS AC OSS PROSON RA MARCO OSS PROSON RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO OSS RA MARCO 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DR PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF
                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 6
InterPro; IPR000081; Pico_P2A.
InterPro; IPR002527; Pico_P2B.
InterPro; IPR001676; Rhv.
InterPro; IPR001676; RNA_helicase.
InterPro; IPR001205; RNA_pol_p3D.
Pfam; PF00548; Cys-protease-3C; 1.
Pfam; PF002226; Pico_P1A; 1.
Pfam; PF00947; Pico_P2B; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q8V0C3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-MAR-2002 (Tremblrel.
01-MAR-2002 (Tremblrel.
01-JUN-2002 (Tremblrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
STRAIN-3914ALB96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00680; RNA_dep_RNA_pol; 1.
Pfam; PF00910; RNA_helicase; 1.
ProDom; PD001125; Cys-protease-3C;
ProDom; PD001274; P1co_P28; 1.
ProDom; PD001306; P1co_P2A; 1.
PROSITE; PS00190; CYTOCHROME_C; UNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Viruses; ssRNA positive-strand viruses, no DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Polyprotein (Fragment).
Human poliovirus 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=21635047; PubMed=11773144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001205; RNA_pol_P3D. Pfam; PF00548; Cys-protease-3C; 1. Pfam; PF02226; Pico_PlA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |||||||
| EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EALFOG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF00947; Pico_P2A; 1.
PF01552; Pico_P2B; 1.
PF00073; rhv; 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            l Similarity
6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          340
826
1128
1277
1404
1670
1790
1790
1812
2002
2063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    >1403
>1669
>1789
>1811
>2001
>2063
2063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pico_PiA.
Pico_P2A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RNA_helicase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       229822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pico_P2B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20,
21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ¥;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P2-B.
P2-C.
P3-A.
VPG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROTEASE P3-C.
POLYMERASE P3-D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROTEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9ED5EA03BED37A4D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2063 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P2-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.4e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                               'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                               Hit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT OF RESULT
                                                                                                                           T "Investigation of the Presence of Recombinant Politoviruses in the Population in Albania during the 1996 Outbreak.";

L. J. Clin. Microbiol. 40:316-317(2002).

REMBL; AV056703; AAL33797.1;

RINterPro; IPR000199; Cys-protease-3C.

RINterPro; IPR000345; Cys-cpta.

RINterPro; IPR000318; ploc_plA.

RINterPro; IPR00318; ploc_plA.

RINterPro; IPR000195; Ploc_plA.

RINterPro; IPR000181; ploc_plA.

RINterPro; IPR001675; RNA_helicase.

RINterPro; IPR001675; RNA_bol_plA.

RINterPro; IPR001505; RNA_bol_plA.

RINterPro; IPR001505; RNA_bol_plA.

RINterPro; IPR001505; RNA_bol_plA; 1.

R Pfam; PF00226; ploc_plA; 1.

R Pfam; PF00947; ploc_plA; 1.

R Pfam; PF00917; rNy; 3.

R Pfam; PF00151; RNA_dep_RNA_pol; 1.

R Pfam; PF001680; RNA_dep_RNA_pol; 1.

R Pfam; PF001680; RNA_dep_RNA_pol; 1.

R Pfam; PF001680; RNA_dep_RNA_pol; 1.

R Pfam; PF001680; RNA_dep_RNA_pol; 1.

R Pfam; PF00171; RNA_dep_RNA_pol; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                             PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08V0C2
08V0C2;
01-MAR-2002
01-MAR-2002
01-JUN-2002
                                                                                                        ProDom; ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-4019ALB96;
MEDLINE-21635047; PubMed-11773144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Polyprotein
Human polio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |||||||
| 1447 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Enterovirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Viruses; ssRNA positive-strand viruses,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00073; rhy; 3.
Pfam; PF00680; RNA_dep_RNA_pol; 1.
Pfam; PF00910; RNA_helicase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Marturano J., Fiore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      poliovirus
                                                                                  PD001306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PD001274; Pico_P2B; PD001306; Pico_P2A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PS00190; CYTOCHROME_C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 (TrEMBLrel. 20, 02 (TrEMBLrel. 20, 02 (TrEMBLrel. 21, 02)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Fragment).
ovirus 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1128
1277
1404
1670
1790
1812
2002
2063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     >825
>1127
>1276
>1403
>1669
>1789
>1781
>2001
>2063
                                                       Pico_P2B; 1.
Pico_P2A; 1.
CYTOCHROME_C; UNKNOWN_1.
                                                                                                                         Cys-protease-3C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cys-protease-3C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          229836 MW; A2EDED99A21EDF22 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
Last sequence update)
Last annotation update)
VP4.
VP2.
VP3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLYMERASE P3-D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VPG.
PROTEASE P3-C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROTEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P2-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . 2.4e+02;
ches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        no DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hit
```

0,

```
용
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                      ₽
                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFFITTION.
                                                                                                                                                                                                                     Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 6
                                                                                                              01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                          Q8QUZ6
Q8QUZ6;
01-JUN-2002
                                                                                                                                                                                      1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                               Krumbholz A., Dauber M., Henke A., Birch-Hirschfeld E., Stelzner A., Zell R.;
"Stelzner A., Zell R.;
"Sequencing of porcine enterovirus (PEV) groups II and I unique features of both virus groups.";
Submitted (MAR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF363455; AAM00276.1;
EMBL; AF363455; AAM00276.1;
SEQUENCE 2171 AA; 240751 MW; 789F6E0C3A7FD378 CRC64;
               MEDLINE-99429271; PubMed-10501163; MCGarthy F.M., Smith G.A., Mattick "Molecular characterisation of Aust Vet. Microbiol. 68:71-81(1999).
                                                                                     Viruses; ssRNA
                                                                                                Bovine
                                                                                                       Polyprotein.
                                                                                                                                               Q9PYB7
                                                                                                                                                                                                                                                                                                                                 Enterovirus.
NCBI_TaxID=106967;
                                                                                                                                                                                                                                                                                                                                                                          01-JUN-2002
01-JUN-2002
                                                      SEQUENCE FROM N.A.
                                                                      NCBI_TaxID=12064;
                                                                               Enterovirus
                                                                                                                                        09РҮВ7;
                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
STRAIN-LP 54;
                                                                                                                                                                                                                                                                                                                                                 Viruses; ssRNA positive-strand viruses,
                                                                                                                                                                                                                                                                                                                                                         Porcine enterovirus
 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                         11
                                                                                                                                                               12
                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 EALFQG
                                                                                                                                                                                                     1 EALFQG 6
                                                                                                                                                                                                                                     Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                EALFQG 1452
                                                                                                                                                                                      EALFQG
                                                                                               enterovirus
                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 6; Conserv
FROM
                                                                                                              (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                         (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1404
1670
1790
1812
2002
2063
2063
                                                                                                                                                                                      1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                               PRELIMINARY;
N.A.
                                                                                     positive-strand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               $.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               >1127
>1276
>1403
>1669
>1789
>1811
>2001
>2063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2063
                                                                                                                                                                                                                                                                                                                                                          10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                            100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               229820
                                                                                                              13,
21,
                                                                                                                                                                                                                            . 0%;
                                                                                                             Created)
Last sequence
Last annotation
                                                                                                                                                                                                                                                                                                                                                                         Created)
Last sequ
Last anno
                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₩.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VPG.
PROTEASE P3-C.
POLYMERASE P3-D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VP1.
PROTEASE
P2-B.
P2-C.
P3-A.
                                                                                                                                                                                                                    Score 30; DB Pred. No. 2.5); Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 30; DB Pred. No. 2.4
D; Mismatches
                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                       tick J.S.;
Australian
                                                                                     viruses,
                                                                                                              sequence up
                                                                                                                                                                                                                                                                                                                                                                        sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              958FB9141805F2A1
                                                                                                                                               2174
                                                                                                                                                                                                                                                                                                                                                                                                         2171 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P2-A.
                                                                                                                                                                                                                          DB 12;
2.5e+02;
                                                                                     9
                                                                                                                                                                                                                                                                                                                                                  ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 12;
                                                                                                             on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .4e+02;
                       bovine
                                                                                     DNA stage; Picornaviridae;
                                                                                                                                                                                                                                                                                                                                                 DNA stage;
                                                                                                                                                                                                                     0
                       enteroviruses.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 2063;
                                                                                                                                                                                                                                   Length 2171;
                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                                                                                                                                                                                                                                                                                  Picornaviridae;
                                                                                                                                                                                                                                                                                                  Knowles N.J.,
                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
RESULT
Q9PYB6
 밁
                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 6
       SEQUENCE FROM N.A.
STRAIN-SL305;
STRAIN-SL305;
MCCarthy F.M., Smith G.A., MCCarthy F.M., Smith G.A., MCCarthy F.M., 1999) to the Submitted (JAN-1999) to the EMBL; AF123433; AAF05694.1;
HSSP; P12915; 1BEV.
                                                                                                                                                                             Q9PYB6;
Q9PYB6;
Q1-MAY-2000
Q1-MAY-2000
Q1-JUN-2002
                                                                                                                                                                                                                                                                                                                                 CHAIN
CHAIN
CHAIN
SEQUENCE
                                                                   SEQUENCE FROM N.A.
STRAIN-SL305;
MEDLINE-99429271; PubMed-10501163;
MCCarthy F.M., Smith G.A., Mattick
"Molecular characterisation of Aust
Vet. Microbiol. 68:71-81(1999).
                                                                                                                                                                                                                                                            1414
                                                                                                                                                                                                                                                                                                                                                                                                                                         ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      McCarthy F.M., Smith Submitted (JAN-1999) EMBL; AF123432; AAF05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; AF12343
HSSP; P12915;
                                                                                                                                            Enterovirus
                                                                                                                                                   Viruses; ssRNA
                                                                                                                                                              Bovine
                                                                                                                                                                     Polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                  NCBI_TaxID=12064;
                                                                                                                                                                                                                                 μ
3
                                                                                                                                                                                                                                                                             1 EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                erPro; IPR000605; RNA_helicase.

erPro; IPR001205; RNA_pol_p3D.

m; PF00548; Cys-protease-3C; 1.

n; PF02226; Pico_P1A; 1.

n; PF00947; Pico_P2A; 1.

n; PF001552; Pico_P2B; 1.
                                                                                                                                                                                                                                                            EALFQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           : PF00073; rhv;
: PF00680; RNA_d
: PF00910; RNA_h
                                                                                                                                                            enterovirus
                                                                                                                                                                                                                                                                                              h 100.0%; Score 30; Di Similarity 100.0%; Pred. No. 2.: 6; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                         PD001306; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                PD001125; Cys-protease-3C; PD001274; Pico_P2B; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F00680; RNA_dep_RNA_pol;
F00910; RNA_helicase; 1.
PR00918; CALICVIRUSNS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : IPR001676;
: IPR000605;
: IPR001205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IPR003138; Pico_P1A.
IPR000081; Pico_P2A.
IPR002527; Pico_P2B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR004004; Calici_pol_hel
IPR004004; Calici_pol_hel.
                                                                                                                                                                                                                                                                                                                                  70
318
560
840
990
1089
1419
1508
1531
1714
                                                                                                                                                                             (TrEMBLrel.) (TrEMBLrel.) (TrEMBLrel.)
                                                                                                                                                                                                                                                            1419
                                                                                                                                                                                                                                                                             6
                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                   positive-strand viruses,
                                                                                                                                                                                                                                                                                                                                        71
559
839
989
1088
1418
1418
1507
1530
1713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      G.A.,
                                                                                                                                                                                                                                                                                              2B.
2C.
3A.
3A.
VPG 3B.
PROTEASE 3C.
POLYMERASE 3D.
3047875D8B0F5288 CP.
30; DB 12;
2.5e+02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cys-protease-3C
                                                                                                                                                                                                                                                                                                                                  242178
                  the 14.1;
                                                                                                                                                                              13,
13,
21,
                Mattick J.S.;
e EMBL/GenBank/DDBJ; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mattick
                                                                                                                                                                             Created)
Last sequence
Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                      VP4
VP2
VP3
                                                                                                                                                                                                                                                                                                                                                                                              PROTEASE
                                                                              Australian
                                                                                                                                                                            sequence update) annotation update)
                                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4
                                                                                       .s.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                              2A.
                                                                                                                                                                                                                                                                                              , 2.5e+02;
ches 0;
                                                                                                                                                    no
                                                                                                                                                                                                                ⋧
                                                                              bovine enteroviruses.
                                                                                                                                                   DNA stage;
                          databases
                                                                                                                                                                                                                                                                                                              Length 2174;
                                                                                                                                                                                                                                                                                                                                  CRC64;
                                                                                                                                                    Picornaviridae;
                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                             Gaps
```

0

0

```
RESULT
OBV639
AC ORV639
AC OR
DT OR
OC OC OC
OC OC
RP RP RP P
OC VV
RP RP C VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
OC VV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 6
Pfam; PF00548; Cys-protease-3C; 1.
Pfam; PF02226; Pico_P1A; 1.
Pfam; PF00947; Pico_P2A; 1.
Pfam; PF001552; Pico_P2B; 1.
Pfam; PF00073; rhv; 3.
Pfam; PF00680; RNA_der_RNA_pol; 1.
                                                                                                                                                 STAIN=2 VARIANT;
Lindberg A.M., Andersson P.;
"Molecular analysis of a coxsackievirus B4 strain E2 variant.";
Submitted (OCT-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AF311939; AAL37156.1;
InterPro; IPR003593; AAA_ATPase.
InterPro; IPR000199; Cys-protease-3C.
InterPro; IPR000318; Pico_P2A.
InterPro; IPR000318; Pico_P2B.
InterPro; IPR003597; Pico_P2B.
InterPro; IPR002527; Pico_P2B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAR-2002
01-MAR-2002
01-JUN-2002
                                                                                             InterPro; IPR000605; RNA_helicase.
InterPro; IPR001205; RNA_pol_p3D.
InterPro; IPR001205; RNA_pol_p3D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProDom;
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q8V639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProDom;
ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1414 EALFQG 1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Human coxsackievirus B4.
Viruses; ssRNA positive-strand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                          Enterovirus
                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR001676; Rhv. InterPro; IPR001605; RNA_helicase. InterPro; IPR001205; RNA_pol_p3D. InterPro; IPR001205; RNA_pol_p3D. Pfam; PF00548; Cys-protease-3C; 1. Pfam; PF02226; Pico_P1A; 1. Pfam; PF00947; Pico_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 EALFQG 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PF00910;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF00073; rhv;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PF01552; P1co_P2B; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PD001125; Cys-protease-3C; PD001274; P1co_P2B; 1. PD001306; P1co_P2A; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PR00918; CALICVIRUSNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 (TrEMBLrel.
2 (TrEMBLrel.
2 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                70
318
560
840
990
1089
1419
1419
1508
1531
1714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RNA_dep_RNA_pol;
RNA_helicase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u></u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     989
1088
1418
1507
1530
1713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    317
559
839
                                                                                                                            Rhy.
RNA_helicase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pico_PlA.
Pico_P2A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P1CO_P2B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cys-protease-3C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  242286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28.
2C.
3A.
VPG 3B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VP4.
VP2.
VP3.
VP1.
PROTEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 30; DB Pred. No. 2.5); Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROTEASE 3C.
POLYMERASE 3D.
PW; 9AADC6487649A2EC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                              viruses, no DNA stage; Picornaviridae;
     ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 12;
2.5e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 2174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT RESULT R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SO DR
ProDom;
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best
                                                                                                                                                                                                                                                                                                                                     InterPro; IPR00081; Pico_PiA.
InterPro; IPR002527; Pico_PiA.
InterPro; IPR001676; Rhv.
InterPro; IPR001676; RNA_helicase.
InterPro; IPR001205; RNA_pol_pid.
Pfam; PF00548; Cys-protease-3C; 1.
Pfam; PF00226; Pico_PiA; 1.
Pfam; PF00947; Pico_PiA; 1.
Pfam; PF00947; Pico_PiA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9QL88
Q9QL88;
Q1-MAY-2000
01-MAY-2000
01-DEC-2001
                                                                                                                                                                                                                                             PRINTS;
ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-SCHMITT;
Martino T.A., Tellier R., Petric M., Irwin D.M., Afshar A., Liu Submitted (NOV-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; AF105342; AAF12719.1; -.
HSSP; P21404; 104M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-99432326; PubMed-10500285;
Martino T.A., Tellier R., Petric M., Irwin D.M., Afshar A., Liu P.P.;
"The complete consensus sequence of coxsackievirus B6 and generation
of infectious clones by long RT-PCR.";
Virus Res. 64:77-86(1999).
                                                                                                                                                                                                                             ProDom;
                                                                                                                                                                                                                                                                             Pfam; PF00073; rhv; 3.
Pfam; PF00680; RNA_dep_RNA_pol; 1.
Pfam; PF00910; RNA_helicase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProDom; PD001125; Cys-protease-3C; ProDom; PD0011774; Pico_P2B; 1. ProDom; PD001306; Pico_P2A; 1. SMART; SM00382; AAA; 1. SMART; SM00382; AAA; 244045 MW; BC SEQUENCE 2183 AA; 244045 MW; BC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; ssRNA positive-strand viruses, no DNA stage; Picornaviridae; Enterovirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1423 EALFOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEROPS; CO3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-SCHMITT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human coxsackievirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=74561;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00910; RNA_helicase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 EALFQG
                                                                                                                                                                                                        PD001
                                                                                                                                                                                                                    PR00918; CALICVIRUSNS.
PD001125; Cys-protease-3C;
PD001274; Pico_P2B; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR004004; Calici_pol_hel.
IPR000199; Cys-protease-3C.
IPR003138; Pico_PlA.
IPR000081; Pico_P2A.
      331
569
851
1001
1100
1429
1518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0 (TrEMBLrel. 13, 0 (TrEMBLrel. 13, 1) (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
    P1CO_P2A;
69
330
5568
850
1000
1000
11428
11428
11428
1722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created)
Last sequence update)
Last annotation update)
  P2-A.
P2-B.
P2-C.
P3-A.
P3-B.
P3-C.
                                                                                                                      VP4.
VP2.
VP3.
VP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BC34D472E372953D CRC64;
                                                                                                                                                                                                                                         1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . 2.6e+02;
thes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P.P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

```
FT CHAIN 1723 2184 P3-D.

SQ SEQUENCE 2184 AA; 243253 MW; 48B8268B1C523AD8 CRC64;

Query Match 100.0%; Score 30; DB 12; Length 2184;

Best Local Similarity 100.0%; Pred. No. 2.6e+02;

Matches 6; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 EALFQG 6

| | | | | | |
| Db 1424 EALFQG 1429

Search completed: May 20, 2003, 11:37:49

Job time: 2.41398 secs
```